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JPRS-UEA-87-008  
19 JUNE 1987



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# **Soviet Union**

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***Economic Affairs***

19980211 118

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UDC 63.061.22

APK COMBINE STRUCTURE ANALYZED, RAPO DIFFERENCE NOTED

Moscow SELSKOYE KHOZYAYSTVO ROSSII in Russian No 2, Feb 87 pp 16-19

[Article by Yu. Pekhterev, deputy chief of the Economic Administration of the Main Administration for Planning of RSFSR Gosagroprom: "Agroindustrial Combines of Russia"]

[Text] Certainly, the readers remember how, in October of last year, the Politburo of the CPSU Central Committee approved the operational experience of the Kuban Agroindustrial Combine, established by way of an economic experiment 3 years ago in Timashevskiy Rayon in Krasnodar Kray, and handed down a decision on the creation of a number of similar combines in various regions of the country, including in the Russian Federation.

Since the experience of the Kuban Combine was discussed in detail in the article by the combine's general director M. Lomach, published in the fourth issue for last year, we will not analyze in detail the work of the enterprise at the start of the new five-year plan. Today more importance is being attached to answering a number of "philosophical" questions considered to be of great practical value to all those who, if not today then certainly tomorrow, will follow in the footsteps of the Kuban.

How To Convert a Minus Into a Plus

Over the course of several of the last five-year plans, the economic situation in the agrarian sector developed in a manner such that by the end of the 10th Five-Year Plan the production and sale of the principal food crops were being carried out on an unprofitable basis. Such an important economic lever as price was not only not stimulating production growth but in fact it was even retarding it. It developed that the more a kolkhoz or sovkhoz sold products for which there was an extreme need, the greater its losses became and the worse its economic indicators. And this applied to an absolute majority of the farms.

The deterioration in the financial-economic status of the farms was explained to a certain degree by unfavorable weather conditions. But the principal reason lay in the fact that over the past 10-15 years considerable increases had taken place in the prices for fuel, raw materials and industrial materials consumed by agriculture and also in the rates for services furnished to the

kolkhozes and sovkhozes by service enterprises and organizations. All of this brought about considerable growth in production expenses. It is sufficient to state that during this period production expenses per 100 rubles of gross output increased by 64 rubles, including material expenditures by 50 rubles.

Many farms became chronically unprofitable and carried out their production operations not on the basis of their own internal resources but rather based upon loans and credits furnished by Gosbank. As a result, their indebtedness per 100 rubles of gross output increased from 24 rubles in 1970 to 147 rubles in 1982. Such conditions produced a situation in which the leaders of many kolkhozes and sovkhozes lost interest in economic matters and ceased counting money. Cost accounting operations became formal in nature. The situation was further aggravated by the desire to conceal organizational incompetency and mismanagement for objective reasons. Such important economic categories as price, profit and credit gradually began to forfeit the role they played as economic levers and failed to stimulate growth in labor productivity.

In order to correct the situation in a radical manner, the party's central committee and the USSR Council of Ministers implemented, commencing with the well known decisions handed down during the May (1982) Plenum of the CPSU Central Committee, a number of large-scale measures aimed at improving the administrative system and the economic mechanism for the agrarian sector. This had an immediate effect on the operational results of enterprises and it made it possible to employ the economic laws and cost accounting with greater effectiveness. The economies of the kolkhozes, sovkhozes and industrial enterprises became stronger and the production and economic relationships of partners in the agroindustrial complex underwent further development.

However, substantial shortcomings are still occurring today in the work being performed by agricultural, industrial and service enterprises. Caused by incomplete utilization of the production potential, these shortcomings are seriously retarding growth in the production volumes and improvements in the quality of the products and they are resulting in the illegal use of all types of resources and in a very slow reduction in unproductive expenditures and losses.

Experience has shown that even following the creation of rayon agroindustrial associations (RAPO's), as a result of the shortcomings inherent in this form for administering the agroindustrial complex, it was impossible to achieve integration of the agrarian sector with the processing industry, no serious changes took place in the economic mechanism for relationships between kolkhozes and sovkhozes on the one hand and processing enterprises on the other and the administration, planning and financing of the agroindustrial complex as an integral whole is not being achieved at all levels.

At the same time, the carrying out of large tasks concerned with increasing the production of agricultural and industrial products, tasks advanced during the 27th CPSU Congress, is impossible in the absence of a thorough reorganization of the economic mechanism and the creation of a complete, efficient and flexible administrative system, one which would make it possible to make complete use of the opportunities afforded by socialism. These then are precisely the goals of the well known decrees of the party's central

committee and the USSR Council of Ministers, adopted in late 1985 and at the beginning of 1986. The measures called for in them made it possible to expand the economic independence of agricultural enterprises, to further strengthen and develop cost accounting operations, to achieve growth in labor productivity, to raise the material interest and responsibility of labor collectives with regard to increasing production, lowering production costs and improving output quality and ensuring efficient use of the financial-credit levers and the introduction of an effective anti-expenditure mechanism.

But a further search for more efficient managerial methods is required if practical solutions are to be found for these tasks of tremendous national economic importance. This was the goal of the economic experiment carried out in the Kuban and of the Kuban Agroindustrial Complex formed within its framework. This complex became the prototype for the creation of an entire group of similar APK's in Moscow, Leningrad, Sverdlovsk, Vologda, Volgograd and Rostov oblasts and in Stavropol Kray and the Tatar ASSR.

#### From RAPO To RAPO

Distinct from RAPO's, agricultural production operations, the thorough processing of field and farm output and its packaging, storage and sale are all brought together, not formally but economically, in agroindustrial complexes. For carrying out the tasks assigned to them, the combines have all of the necessary services under their subordination. In other words, a combine is a rayon agroprom that has been granted all of the rights and opportunities of a production association and thus this explains the abbreviation RAPO [rayon agroindustrial association] recommended for it by a Stavropol economist. Thus, with the creation of this system of combines, a true master of the land has appeared and all branches are administered, planned and financed from a single center -- the general management of a combine.

All of the combines in operation today were created based upon strong farms located as a rule in the same administrative rayon. Thus the most typical features of the new APK's are territorial unity with relatively high and balanced levels of development for all of the combines and enterprises being formed and maximum possible completeness of the technological cycle from field to counter. Their structure includes agricultural enterprises which produce diverse types of products, industrial enterprises for processing the goods produced, a unified construction organization based upon the deployment throughout a region of construction subunits representing various departments, a unified motor transport enterprise, a unified organ for supplying logistical resources and a unified financial-accounting center with its own type of internal bank, through which all of the combine's subunits carry out their monetary operations.

The combines are assigned three mutually related tasks: first of all, based upon further intensification, to achieve accelerated growth in the production of agricultural products and also improvements in the quality of the products; secondly, to ensure the introduction of modern technologies for the processing, packing, storage and sale of products, taking into account the complete use of the raw materials produced, to expand the assortment

considerably and raise the quality of the goods being produced, to increase export deliveries; thirdly, to raise production efficiency sharply so that the work of all enterprises will be converted over to a self-supporting basis as rapidly as possible.

Thus the special purpose aims which define the work of the combines and their organizational principles are creating more favorable conditions for strict observance of this exceptionally important socio-economic threefold unity -- complete conformity of the economic interests of society on the whole with the interests of each labor collective and each worker, a feature which, it can be stated directly, we never achieved earlier, since the branch, private and public interests were all too often in conflict with one another.

In this regard, I would like to mention two aspects which are of special importance during the stage in which a combine is being formed and during the initial period of its development. Here we have in mind the right extended to combines to create production, procurement, trade, planning, construction and transport enterprises and also the scientific subunits required for the normal functioning of an APK on the whole and also to reorganize and abolish them. This creates the required normative and legal base for carrying out organizational and economic improvements in the structure of a combine. It should also be noted that the addition to their structure of enterprises representing various departments by no means in meant to imply a mechanical union as in a RAPO. The newly created large-scale subunits are granted more extensive rights and functions. Thus the motor transport association of the Kuban Agroindustrial Combine has within its structure approximately 600 freight and special machines. This concentration of transport equipment made it possible, during the first year of its operation, to raise the daily output per machine by 41 percent. The cost per ton-kilometer in the association was one third lower than that at kolkhozes. Even more striking was the fact that the difference in this indicator between an association and industrial enterprises amounted to a factor of almost 2.5.

Even during the stage of preparing for the experiment, there was no doubt but that with the creation of formations similar to the Kuban a mandatory condition for their normal operation would be the availability of an adequately developed production base for the processing of all agricultural products remaining after the completion of all obligations to the state. Experience has fully confirmed this thesis. But it also revealed that the absence in a combine's system of a well-developed network of trade and public catering enterprises precludes the possibility of uncovering fully all of the advantages of this new form for organizing production. And this is natural since such a network is of assistance in accelerating the delivery of high quality agricultural products and food goods to the population and reducing losses and unproductive expenditures.

Thus, in 1985, the Kuban APK sold almost 20 million rubles worth of diverse products through its own trade network, products for which there was a high demand. Last year, this indicator was doubled. The profit from trade activity increased accordingly: in 1986 it amounted to approximately 2 million rubles.

The internal trade network of the combines serves as a type of showcase for the entire agroindustrial complex. At the same time, it promotes an increase in responsibility for the quality of the goods being produced and consumer response serves as an objective evaluation of the results achieved. The overwhelming majority of the consumers have evaluated in a positive manner the assortment and quality of the goods being produced by the Kuban APK and the people are satisfied with the organization of services. Here is one of the responses: the "Kuban APK store is not simply a rank and file store, but rather it is a heavenly corner for supplying the population with the many gifts of nature."

#### Independence Is Not a Goal In Itself

The chief principle for organizing combines and administering these complicated, diverse and multiple-plan operations is based upon a strict combination of broad independence for each enterprise included in the structure and a high level of responsibility for uniting the efforts of all in behalf of the final goal -- growth in production and improvements in operational efficiency.

In the absence of efficient coordination in the work by all subunits, it is impossible to achieve high operational indicators in the work of the overall agroindustrial formation. Indeed, a breakdown in any element of the chain, from the field to the counter, results in a deterioration in the overall result. How is the integration of agricultural production with the processing industry and trade being carried out within the framework of a combine?

The kolkhozes and sovkhozes and all other enterprises and organizations included in the structure of a combine retain their complete economic independence and the right of a legal entity. Thus the collective system and strict observance of the interests of each partner serve as the basic principle for establishing administration.

The highest organ of administration is the council, the structure of which includes a general director (chairman of the council), his deputies, the leaders of all of the combine's enterprises and organizations and also representatives of the labor collectives. A council presidium is being created for achieving operational solutions for current problems. It convenes when required and it is authorized to hand down decisions on problems referred to it by the council.

The council and presidium concentrate special attention on searching for reserves for further intensifying production and for working out the new managerial mechanism. They do not concern themselves with solving such problems as when and what should be sown and by whom, how the equipment should be prepared, what feed should be procured or other problems concerned with direct operations -- these are the prerogatives of the enterprises themselves. The council must provide for the planning, financing and logistical support for all subunits as a unified production organism.

Since the combines produce very diverse products and since up until recently the enterprise-partners belonged to various departments which had "unrelated" economic indicators and norms, unified planning turned out to be a rather difficult undertaking. It was impossible to continue planning by branches, since this represented a retreat from the chief goal -- that of creating a single production-economic complex. Thus a basically different approach was needed. And such a solution was found. All of the indicators for a combine are planned as a single whole for the "agricultural" branch and the production volumes by branches are shown in the respective sections of the plan.

Instead of numerous tasks, approved at the present time by RAPO's of the highest instance, only four indicators are established for a combine "from on high": the volume for the delivery of products to the all-union and republic funds (based upon the plans for production operations); payments into the budget and appropriations from the budget; the overall wage fund (normative); logistical resource volumes. All of the remaining plan indicators are developed, examined and approved by a combine's council. It should be emphasized that such indicators as production volume, marketable output, its nomenclature, number of workers, growth in labor productivity and even the volume of capital investments and the placing in operation of fixed capital are planned by the combines themselves. Under these conditions, the possibility exists of achieving a balance for all of the indicators planned and of taking into account the peculiarities of each enterprise included in a combine's structure. This makes it possible to achieve mutual coordination for all sections of a plan, the complete utilization of internal reserves and a proper balance for branch development.

The volumes for deliveries into the all-union and republic funds are established for a limited number of products, including fruit, vegetables, meat, milk and eggs. These products can be supplied by combines either in natural or processed form, with a conversion over to natural volumes in the established manner. The plans for use of the remaining types of products are approved by a combine's council.

Instead of a plan for state procurements, a combine establishes tasks for kolkhozes and sovkhozes for the sale of grain, sugar beets, sunflowers, vegetables, fruit, livestock and poultry, milk, wool and other types of agricultural products and reports the task volumes to the executive committee of the oblast or kray council. This is not simply a new name. It is a basic change in the very essence of relationships among enterprises included in a combine's structure. Today it is the combines and not the kolkhozes or sovkhozes that are fully responsible to the state for deliveries into the union and republic food funds. The farms are responsible to a combine's council for fulfillment of the sales tasks established with their consent.

Thus a basically new model is being developed in the sphere of planning at agroindustrial combines. It is aimed chiefly at expanding the economic independence of enterprises and stimulating their accelerated development, with unconditional fulfillment of the deliveries of products into the all-union and republic funds.

Experience has shown that in order to achieve high final results, the reorganization of the organizational structure must be organically linked to reinforcing the cost accounting levers and economic stimuli.

Not only are changes taking place within the agroindustrial combines in the economic stimulation of production, but in addition the rights of the producers of goods in the area of price formation are being expanded considerably. In particular, the plans call for ensuring that products sold to the all-union and republic funds are paid for according to the existing state prices. All of the remaining products sold through the internal trade network (stores, cafeterias, restaurants), at the market or to other consumers are paid for according to prices approved by a combine's council or determined on the basis of an agreement between the parties involved. When establishing the prices, a combine's council takes into account the quality of the products and their packaging and also consumer demand. The prices must compensate for the expenditures required for production, storage, processing and transporting and they must also ensure the savings required for expanded reproduction. This is opening up a broad field of activity for the economic service, which must constantly study the market requirements and determine the types of goods which ideally should be produced from the same raw materials, in the interest of improving the quality and expanding the assortment of products.

The effectiveness of thorough processing of agricultural products using the resources of a combine is confirmed by the operational practice of the Kuban and other APK's, for example the Moskva Moscow combine. Thus the sale of sunflower seed in unprocessed form furnishes the Kuban with a profitability of 162 percent and after the seed has been processed for oil and sold at a price of 1.7 rubles per kilogram, the profitability increases to 345 percent. The profit from each ton of seed increases by almost 1,000 rubles. A similar picture is being observed in connection with the processing of wheat grain for flour and the baking of bread and baked goods.

The rights of combines with regard to the creation of centralized funds for economic development are being expanded considerably. Distinct from the system which prevails in other state enterprises, combines can determine independently the size of the withholdings for the centralized funds for economic stimulation and they approve their own conditions for the use of these funds.

The system of interrelationships between the combines and the budget has been reviewed and changed. Actually, the structure for combines includes enterprises from various branches, each of which has its own principles for participation in formation of the budget. The maintenance of such a system would prevent us from ever achieving normal functioning for the combines as unified and complete organisms. And most important -- enterprises in this instance would not have any interest in increasing their profit or in raising production profitability.

The combines carry out all computations with the budget on a centralized basis and according to a unified principle. This places all of the partners within

a combine under the same conditions. State interests are not infringed upon, since the total amount of payments is not lower than the actual level for past years.

Thus the financial-economic system adopted by the combines and also their organizational principles are infinitely simple and democratic: a definite percentage of the earnings is added to the budget and the remainder is placed at the complete disposal of the enterprises which, based upon the available funds, plan their own expenditures.

#### Why Does a Combine Have Its Own Bank?

A basically new innovation in the organization of all economic and financial work is the creation within the structure of a combine of a single financial-accounting center, which at the beginning of this article we described as a type of internal bank for a combine. Nor was this stated for the sake of rhetoric. Within a combine, a financial-accounting center truly carries out all of the functions of a state bank, or to be more precise, those of a local branch. The center performs all of the accounting, credit and other operations between enterprises and organizations included in the structure of a combine and it acts in behalf of the combine in all financial-economic matters involving supply, procurement, processing, trade and other enterprises and organizations and with USSR Gosbank. This is the first time that such experience has been accumulated in our country.

Enterprises and organizations belonging to a combine close their current and loan accounts in a local branch of Gosbank and open them in a financial-accounting center, where all of the accounting and monetary operations of individual enterprises and organizations and the combine as a whole are reflected on a daily basis and where a balance is composed. All of the information is presented on the same day to the combine's management. Thus the general director and workers attached to the planning-economics and other services are constantly informed regarding the financial situation and can actively exert an influence on the solutions for all financial problems.

Is it necessary to emphasize the fact that within the RAPO [rayon agroindustrial association] system, where the farms and other enterprises and organizations of the agroprom [agroindustrial committee] are united only administratively and not economically, it is to say the least difficult to form such an "internal" bank? And under the conditions imposed by a RAPO, is another element needed between Gosbank and the enterprises?

But in addition to being useful, such an element is needed by a combine as a means for controlling the finances. For example, in the absence of a center the introduction of an extremely effective system for internal short-term crediting for enterprises using the internal resources of a combine, a system which would make it possible to mobilize financial resources to the maximum possible degree and ensure their complete and rational utilization, would simply be impossible.

It should be emphasized that the borrowing by a financial-accounting center of spare monetary funds from some enterprises and transferring them to others for

temporary use is not a violation of the principles of cost accounting, as it now appears to some economists. In their opinion, cost accounting includes the infinite right of enterprises to use the funds stored in their current accounts. However, Gosbank has always used and continues to use such funds today as credit resources. In what manner does cost accounting suffer from the fact that the functions of the bank are transferred over to the financial-accounting center? In no way does it suffer. On the other hand, the advantages are readily apparent. A distinct departmental barrier exists between a RAPO and a branch of Gosbank and this means that their interests will be different. A financial center has only one concern -- profit for the combine and its enterprises. And the cost accounting interests of the latter are ensured moreover by the establishment of a differentiated interest policy with regard to the creditors and borrowers. This is one of the guarantees for the timely repayment of debts. A reliable guarantee for the interests of enterprises included in the structure of a combine is its central reserve fund.

The creation of a financial-accounting center and the introduction of a system for short-term crediting made it possible for the Kuban Combine, in 1985, to reduce the indebtedness of the combine's enterprises to Gosbank and, at the same time, to increase the amount of internal working capital. And this took place despite an increase in expenditures for unfinished production and for creating the required supplies of commodity stocks.

In short, even during the brief interval of time that has elapsed since the creation of the Kuban Combine and its financial-accounting center, life has convincingly proven the economic and administrative advisability of this measure. The following fact can be added to the indicators cited above: a reduction in Gosbank loan indebtedness produced a savings in the expenditure of internal capital for interest payments on loans. And the total amount is considerable -- 419,000 rubles during one year alone. The Gosbank workers are satisfied: an increase in daily control over the status of accounts has produced a situation in which loan repayments are being made on a regular basis.

#### A Summary of Results

It is difficult in one article to cover all of the peculiarities and virtues of such an unusual economic formation as an agroindustrial combine. Thus in conclusion we will pause briefly to discuss the principal differences between an APK and a RAPO.

The chief difference of this basically new production-economic formation lies in the fact that combines, unlike RAPO's, carry out their operations exclusively based upon the principles of self-support and self-financing. It should be emphasized that they are not reimbursed from the budget for the difference in prices for all products sold through their own trade network. In the case of the Kuban, for example, the savings in budgetary funds in this area in 1985 amounted to approximately 10 million rubles and in 1986 it increased to 17 million.

Further, distinct from RAPO's, where each enterprise has its own regime for planning, financing, material incentives and crediting, the economic mechanism of a combine is truly unique. For it is here that the principle of planning and financing for all branches of the agroindustrial complex as a single entity is carried out in actual practice. This also applies to interrelationships with the budget. Compared to RAPO's where some enterprises add a definite portion of the value of their fixed capital to the budget, others pay depending upon their profitability level and a third group transfers spare funds, which complicates considerably the work of a RAPO financial service and the possibility of maneuvering resources, a combine makes all of its payments into the budget based upon one indicator -- the actual profit obtained in a percentage strictly defined for a five-year period.

The fact that the procurement plans for farms belonging to combines, unlike farms in the RAPO system, are not approved, makes it possible for the combine farms to employ a creative approach for solving all problems associated with the use of natural-economic resources and to develop their operations taking into account the final operational results of a combine as a whole.

Today combines represent the only formation in the country which is authorized to establish independently the prices for products sold not only in their own stores, restaurants and cafeterias but also supplied to other trade and public catering enterprises and to URS's [Administration of Workers' Supply]. This creates the conditions required by combines for solving the chief task -- converting over to self-financing.

Equal importance is attached to the fact that once again, distinct from the RAPO's, the combines have been extended the rights of procurement organizations and thus even those products which in the interests of the work will be procured in other regions, will be credited to the supplier towards fulfillment of the procurement plan.

And the last important distinction between the combines and RAPO's is the financial-accounting centers of the combines, as a result of which maneuverability in the use of free capital is increased considerably. Last year, by means of this factor alone, the Kuban collective reduced its requirement for USSR Gosbank credits by 56 million rubles and realized a savings in interest payments of approximately 1 million rubles.

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## CONFERENCE NOTES RSFSR APK STATISTICAL DATA INACCURACIES

Moscow VESTNIK STATISTIKI in Russian No 3, Mar 87 pp 72-75

[Article by V. Nefedov: "Reorganization of APK Statistics"]

[Text] Moscow--In late 1986, a conference was held in Moscow that was organized by the Statistical Administration for the APK [Agro-Industrial Complex] of the RSFSR TsSU [Central Statistical Administration]. It was attended by the deputy chiefs of statistical administrations of autonomous republics, krays and oblasts of the Russian Federation, by the chiefs of APK statistical departments of statistical administrations and by representatives of the USSR TsSU and RSFSR Gosagroprom [State Agro-Industrial Committee].

In opening the conference, the chief of the RSFSR TsSU P. Guzhvin stated that the time is at hand for adopting basic measures aimed at improving accounting and reporting and increasing the role they play in ensuring efficient and thrifty use of resources, in intensifying the campaign against mismanagement and waste and in protecting socialist property. Special importance is attached to reducing the amount of reporting, to eradicating illegal reporting and to ensuring the authenticity of accounting data and the objectivity of information. The solutions for these problems must be viewed as an important political task. Measures are being carried out at the present time aimed at strengthening the organs of state statistics, primarily at the rayon level, and developing their logistical base. The solutions for the established tasks will depend upon stimulating the work of all specialists, upon their competence, initiative, sense of responsibility for assigned tasks and upon personnel policies.

The chief of the Statistical Administration for the Agro-Industrial Complex of the RSFSR TsSU M. Koketkin delivered a report on the tasks of APK statistics in light of the decisions handed down during the 27th CPSU Congress. He noted that in a number of statistical administrations active improvements are being realized in APK statistical work, initiative is expanding and a creative approach is being employed in the work. However the reorganization is proceeding slowly in many statistical administrations, the operational style and methods remain unchanged and the statistical information is of the traditional type and not entirely adequate. Neither the authenticity of the accounting data nor the objectivity of the information being presented to the

leading organs are always being ensured. The campaign against illegal reporting is not sufficiently effective.

The reporter discussed in detail the tasks for improving APK statistical work and he devoted special attention to carrying out the requirements of the directive organs with regard to raising the quality of accounting and reporting, the authenticity of the accounting data and the objectivity of information and eliminating illegal reporting.

During this modern stage, a substantial increase is taking place in the role played by a thorough and complete study of the APK. Great importance is being attached to analyzing the functioning of product sub-complexes. For it is an analysis of the structural improvements in the product sub-complexes, the uncovering of reserves for raising production efficiency and a reduction in losses during the stages of production, procurements, transporting, storage and processing of products that will make it possible to outline methods for improving the final results in the production of specific products and ensure the consumption of these products in the volumes called for in the Food Program.

An object of special attention is the preparation of information on the economic experiment for improving the administrative system and the economic mechanism in some RAPO's and the work of agro-industrial combines.

In connection with solving the tasks concerned with achieving stable growth in agricultural production, an increase will take place in the role played by an analysis of the factors affecting farming productivity: the introduction and mastering of crop rotation plans, the implementation of a complex of measures for raising the fertility of soils and the use of intensive technologies for the cultivation of agricultural crops.

A need exists for intensifying the analysis of the development of the grain economy and improvements in its stability. Special attention is now being given to studying the problems concerned with the cultivation of grain crops using intensive technologies. In the process, problems concerned with carrying out the plan for deliveries of mineral fertilizers, lime and gypsum-containing materials and the construction of elevators, milling plants and other installations for the storage and processing of grain, problems associated with the production of grain and baked goods in the required assortment and so forth must be analyzed as part of an overall complex of questions.

The organs of state statistics must devote a maximum amount of attention to analyzing those questions concerned with improving the crop structure for irrigated and drained lands and ensuring that they are supplied with fertilizers.

More intense analysis must be carried out on those questions concerned with the development of animal husbandry and increasing the production of meat, milk and other branch products and a maximum amount of attention must be given to the problems of animal husbandry intensification and to raising considerably the productivity of the livestock. The problems concerned with

strengthening the feed base, ensuring efficient use of feed resources, implementing improvements in selection and breeding work and introducing progressive technologies into operations must be analyzed as part of an overall complex of questions. The development of the individual sub-branches of animal husbandry -- cattle husbandry, swine breeding, sheep raising, poultry production, reindeer raising, beekeeping, fur farming and others -- must not be overlooked by the statistical organs.

More attention must be given to developing the private plots, ensuring that the kolkhozes and sovkhozes supply them with feed for their livestock, to the development of contractual relations for the raising and sale of livestock and for procurements of milk and other products and to the problems concerned with the development of collective horticulture. The leading organs must be informed on a regular basis concerning the development of the subsidiary farms of enterprises, organizations and institutes.

In analyzing the fulfillment of state procurement plans, one must examine the entire nomenclature of agricultural products and raw materials indicated for the territory and not be restricted to only certain types of products.

At the present time, with a large quantity of powerful machines having been accumulated in agriculture, special attention must be given to completing the pool of working machines. In this regard, improvements are required in the information which describes the system of machines used for the all-round cultivation of agricultural crops (from preparation, through the sowing work and up to harvesting the crops). The problems concerned with the use of fuel and lubricating materials in agriculture must be analyzed constantly.

More intense analysis must be carried out on data concerned with the development of the collective contract. The statistical organs must supply the Soviet and party organs with timely and complete information on the introduction of the contractual system into operations in the rural areas and on its effectiveness.

When analyzing the results of financial-economic operations, special attention must be given to the operational results of low profitability and unprofitable farms and the reserves available for raising their production efficiency must be brought to light.

The statistical administrations must carry out random inspections more frequently and use the data obtained from them for studying more thoroughly the causative-investigatory relationships among the processes and phenomena taking place in agriculture and in the agro-industrial complex.

Subsequently, M. Koketkin paused to discuss the tasks concerned with centralization, within the organs of the USSR TsSU, of the statistical reporting of associations, enterprises, organizations and institutes of the USSR Gosagroprom system.

A large portion of the report was devoted to ensuring the authenticity of the reporting data. It was noted that proper contact has not been organized in a number of oblasts, krays and autonomous republics between the statistical

organs on the one hand and the organs of the procurator's office and people's control on the other, in the matter of eliminating or preventing various distortions in reporting.

More all-round territorial inspections should be carried out and their results discussed with the leading rayon organs.

The reporter emphasized that the statistical administrations must furnish more active assistance to the rayon organs of state statistics. The effectiveness of the socialist competition must be raised and improvements must be realized in the work of summarizing and disseminating leading experience.

The participants in the conference exchanged operational experience in improving accounting and reporting and achieving authenticity in reporting data and objectivity in the information employed.

V. Shapkin (deputy chief of Tuloblstatmashinform) shared his experience in the mechanization of agricultural statistical data, with the aid of a collective use computer center. He noted that the mechanization of reporting work made it possible to raise its efficiency and authenticity, with a considerable reduction in labor expenditures by economists, and it provided the latter with more time for intense economic analysis, for checking the data and for carrying out work with the rayon element of state statistics. A number of recommendations were made for regulating the gathering of operational information, for raising the quality of the electronic complexes for processing information and for improving the statistical reporting on subsidiary farms of enterprises. The recommendation was made to devote more attention to strengthening the rayon organs of state statistics and to ensuring that they are supplied with mechanization equipment.

L. Guryev (deputy chief of the Statistical Administration for the Chuvash ASSR) paused to discuss the problems concerned with management of the rayon organs of state statistics and strengthening their material base. The speaker expressed the desire to have the USSR TsSU prepare more efficient instructions for statistical reporting, especially for procurement statistics. He recommended that more materials be published in the journal VESTNIK STATISTIKI explaining the practical use of instructions issued by USSR TsSU.

V. Karpova (chief of the Statistical Administration for Industry of RSFSR TsSU) reported in detail on the problems associated with strengthening reporting discipline in industry and also on the tasks confronting the organs of state statistics in connection with improving the administration of the agro-industrial complex, particularly in connection with changes in the dairy, meat and other branches of industry. A number of considerations were expressed in connection with improving the methodology for accounting and reporting.

V. Dronova (deputy chief of the Statistical Administration for Voronezh Oblast) discussed the joint work being carried out with the oblast's agro-industrial committee, the problems associated with improving statistical information on APK development and fulfillment of the Food Program tasks. She also discussed some questions concerned with improving the programs for

electronic complexes for the processing of information and for regulating reporting on purchases.

S. Dmitriyeva (deputy chief of the Statistical Administration for Penza Oblast) shared her operational experience in ensuring authenticity in reporting data and objectivity of information and in terminating the practice of illegal reporting. She noted that the statistical administration is striving to raise the effectiveness of each inspection and the adoption by the appropriate organs of specific measures in accordance with the inspection results. She expressed a number of recommendations for improving reporting on purchases and gross yields of agricultural crops.

M. Abushakhmin (deputy chief of the Statistical Administration for Orenburg Oblast) discussed the problems concerned with raising the authenticity of reporting data and terminating and eradicating incidents of deception and fraud. He noted that there is still very little openness in carrying out this work and that insufficient use is being made of the mass information media. He offered recommendations for improving the planning of inspection work and for improving support for the statistical organ sin the form of instructional material.

L. Pinchukova (deputy chief of the Statistical Administration for the Maritime Kray) discussed improvements in the economic-statistical information being presented to leading organs, raising its objectivity, completeness and timeliness and also the initiative being displayed by specialists at the oblast and rayon levels. She recommended the development of a method for evaluating the effectiveness of land utilization and also devoting increased attention to the work of rayon organs of state statistics.

S. Streltsov (deputy chief of the Statistical Administration for the Agro-industrial Complex of USSR TsSU) discussed the organization of work in connection with the centralization, within the organs of USSR TsSU, of the statistical reporting of associations, enterprises and organizations of the USSR Gosagroprom system. He discussed the work carried out by the administration in connection with improving the methodology for accounting and reporting and the computations of gross output.

T. Murashkina (deputy chief of the Statistical Administration for Moscow Oblast) discussed work concerned with meeting the requirements of the directive organs in connection with raising the quality of accounting and reporting, eliminating the gathering of data not required for state reporting and the experience accumulated in the preparation of statistical materials for the agro-industrial combines Kashirskiy, Ramenskiy and Moskva. She recommended an acceleration in the publication of an album of forms for primary documentation and statistical reporting within the USSR Gosagroprom system.

N. Shinkareva (deputy chief of the Department of Trade Statistics of RSFSR TsSU) underscored the need for more extensive use of trade materials when preparing economic-statistical information on APK development or on the carrying out of the Food Program. She furnished explanations for the forms of

enterprises of USSR Gosagroprom, centralized within the organs of state statistics.

G. Puzanov (deputy chief of the Statistical Administration for Gorkiy Oblast) shared his operational experience in ensuring the authenticity of reporting data, eliminating incidents of fraud and deception of the state and in coordinating the efforts in this work with the organs of people's control. He discussed the carrying out of complete territorial inspections on the status of accounting and on the authenticity of reporting data and on the adoption of measures based upon their results. He recommended an expansion in the rights of statistical organs in matters concerned with ensuring the authenticity of reporting data and eliminating the practice of illegal reporting.

A. Varlamov (deputy chief of the Administration for Accounting and Reporting for RSFSR Gosagroprom) discussed the mechanization of accounting at kolkhozes and sovkhozes, a reduction in reporting and overcoming the practice of issuing reports not approved by the TsSU and also the problems concerned with centralization of the reporting of associations and enterprises of USSR Gosagroprom within the organs of state statistics. A number of recommendations were made for improving the coordination of work by the agroproms of oblasts, krays and autonomous republics with the statistical administrations.

M. Shcheglova (deputy chief of the Statistical Administration for Omsk Oblast) shed some light on the problems concerned with the preparation of economic-statistical information on APK development, carrying out the tasks of the Food Program and coordinating the work of the oblast's agroprom in connection with implementing improvements in accounting and reporting. She offered recommendations for improving reporting on the work of subsidiary farms of enterprises and on the status of animal husbandry and she expressed a desire to accelerate the preparation of instructions for computing the gross output of the APK.

V. Nagornyy (deputy chief of the Statistical Administration for Krasnodar Kray) shared his operational experience in further analyzing APK development and production intensification and in uncovering reserves for raising the efficiency during the stages of production, procurements, transportation, storage and sale of the products. He discussed the preparation of information describing the operations of the Kuban Agro-Industrial Combine. He also touched upon those problems concerned with reorganizing the work of the rayon organs of state statistics.

N. Pilipenko (chief of the Statistical Department for Procurements and Marketing of the Statistical Administration for the Agro-Industrial Complex of USSR TsSU), A. Ilin (deputy chief of the Statistical Administration for the Agro-Industrial Complex of RSFSR TsSU), N. Petrova and A. Sharokhina (department heads of the RVTs [republic computer center] for the RSFSR TsSU) furnished a number of methodological statistical explanations for procurements, field crop husbandry, animal husbandry, kolkhoz-sovkhoz production and on the schedules for preparing and issuing statistical materials and he answered questions posed by participants in the conference.

In summarizing the operational results of the conference, the chief of RSFSR TsSU stated that the statistical organs must devote a maximum amount of attention to improving the economic mechanism for management, to the problems concerned with converting over from administrative to economic methods for controlling the economy, to reducing the amount of reporting and to eliminating completely illegal reporting. He expressed the confidence that the agrarian statistical specialists in the Russian Federation will make a worthy contribution towards carrying out the decisions handed down during the 27th CPSU Congress.

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CSO: 1824/245

## GRAIN CROP DEVELOPMENT, WEATHER CONDITIONS IN VOLGA REGION

## Grain Fields of Tatar ASSR

Saratov STEPNEYE PROSTORY in Russian No 11, Nov 86 pp 2-5

[Article by N.G. Envald, chairman of Gosagroprom for the Tatar ASSR: "Grain Fields of Tatar ASSR"]

[Excerpts] In the decree of the CPSU Central Committee and the USSR Council of Ministers entitled "Measures for Raising the Stability of the Country's Grain Economy and Increasing the Grain Forage Resources During the 12th Five-Year Plan," it was mentioned that under present conditions the economic and socio-political importance of the grain problem is increasing immeasurably. Purposeful work is being carried out throughout the republic in connection with developing this most important branch of farming. The grain crop yield during the past five-year plan increased by 1.6 quintals and reached 18 quintals per hectare in 1985. The republic successfully fulfilled its plan for selling grain to the state in the volume of 1,550,000 tons.

In striving to consolidate and surpass the results already achieved, the grain growers in the Tatar ASSR devoted a great deal of effort towards growing and harvesting high yields of grain and other agricultural crops during the first year of the 12th Five-Year Plan.

The harvest campaign commenced in the autumn of last year. Autumn plowing was carried out on 2.5 million hectares, with 70 percent of the work being carried out using the non-mouldboard method and almost one half during early periods. The entire complex of field operations was conducted on a high agrotechnical level and in an organized manner. The sowings of new varieties of peas and strong and durum varieties of wheat were expanded considerably, more than 80 percent of the areas of spring grain crops were sown using 1st class seed of high reproductions and increased use was made of fertilizers.

Despite the dry weather which prevailed during the first half of the growing season (up to the middle of June), the grain crop yield for the republic as a whole amounted to 20.7 quintals per hectare and the gross yield was 4.1 million tons. The kolkhozes and sovkhozes successfully fulfilled and over-fulfilled their socialist obligations for the sale of grain, having added 1,500,000 tons of select grain to the country's granaries. The farms in

Baltasinskiy, Vysokogorskiy, Kukmorskiy, Yelabuzhskiy, Oktyabrskiy, Sabinskiy and Aksubayevskiy rayons were the first to fulfill their plans. The largest amounts of grain were harvested on farms in Arskiy, Aznakayevskiy and Buinskiy rayons.

Deserving of special mention are the achievements of the grain growers in Baltasinskiy Rayon, which is located to the north of the Tatar ASSR and which is characterized by sod-podzolic and light grey forest soils. In the not too distant past, the average grain yield obtained here was not more than 10-12 quintals per hectare and each kolkhoz member, specialist and leader dreamed of obtaining a yield of 20 quintals. However, after having introduced the soil protective system of farming and crop rotation plans into operations, having organized seed production work, having increased sharply the use of organic and mineral fertilizers and having raised the overall culture of farming and, most importantly, the quality of all field operations, the workers in Baltasinskiy Rayon, within a brief period of time, achieved leading positions in the republic not only in their grain yields but also in yields obtained from other agricultural crops. In addition, they strengthened their feed base and they are annually fulfilling their plans for selling all types of animal husbandry products to the state. By the end of the year, the productivity of the dairy herd for the rayon as a whole will amount to approximately 3,800 kilograms of milk per cow. In 1985, 23.2 quintals of grain crops per hectare were obtained here and the annual plan for selling grain to the state was fulfilled by 168 percent and that for the five-year period -- by 126 percent. This year the grain growers obtained a high grain yield -- 28.2 quintals per hectare -- and they were the first to fulfill their plan for the sale of grain. In response to the appeal addressed to Soviet workers by the CPSU Central Committee, they resolved to turn over a volume of grain equivalent to one and a half annual plans and they are honorably holding to their promise. This example clearly testifies to the fact that our land will furnish a generous return provided we utilize it in a thrifty manner and skilfully employ the achievements of science and leading experience.

The grain growers in Tukayevskiy Rayon obtained 28.4 quintals of grain from each hectare, Kukmorskiy -- 28, Bugulminskiy -- 27.8 Aktanyshskiy -- 26 and Aznakayevskiy Rayon -- 25.2 quintals per hectare. Rich grain was obtained by the farmers of many leading farms, brigades and sections where a high level was achieved in the culture of farming and where the intensive technology is being introduced into operations on a broad scale. High yields were obtained by the grain growers of the Gigant Sovkhoz in Tukayevskiy Rayon -- 65 quintals of grain per hectare, the Voroshilovskiy Sovkhoz in this same rayon -- 46.3 quintals, Sotsialistik Tatarstan Kolkhoz in Baltasinskiy Rayon -- 39.4, Khafizov Oktyabrskiy -- 38.2, Kommunizma Kukmorskiy -- 37 and Semenovod OPKh [experimental model farm] in Bugulminskiy Rayon -- 36.3 quintals per hectare.

In raising the agricultural crop yields, particularly those for the grain fields, a decisive role was played by the introduction of scientifically sound farming systems developed by scientists of the Tatar NIISKh [Scientific Research Institute of Agriculture] and other scientific institutes with the participation of specialists and leaders of the republic's Gosagroprom [State Agroindustrial Committee]. For example, their use in operational practice enabled the Semenovod, Stolbischchenskoye and Kiyatskoye experimental-

production farms to raise the grain crop yields during one five-year plan from 15 to 28-30 quintals per hectare. Grain production increased considerably and became stable on farms in Aktanyshskiy, Oktyabrskiy, Baltasinskiy, Muslyumovskiy, Arskiy and many other rayons in which this system was introduced earlier in the interest of carrying out a production check.

Improvements are still being introduced into the new zonal farming systems based upon experience accumulated in mastering them on leading farms and the results of new studies. They are predicated upon a more optimum alternation of crops in crop rotation plans and upon an increase in the role played by clean, occupied and green-manured fallow and in the use of soil-protective and energy-conserving soil cultivation technologies.

Leading farms in the Tatar ASSR are making extensive use of the system of soil cultivation to various depths, which is based upon the use of non-mouldboard implements for autumn plowing and fallow. In combination with herbicides and compared to the mouldboard method, such a system makes it possible, according to data supplied by TatNIISKh [Scientific Research Institute of Agriculture for the Tatar ASSR], to raise the winter crop yields by 2-3 and the spring crop yields by 1.5-2 quintals per hectare. In the process, the peculiarities of the soil cover in various zones throughout the republic are strictly taken into account. Thus, in the northern rayons where the arable layer does not exceed 18-20 centimeters, the use of plows having special frames has proven to be highly effective for autumn plowing. Such implements promote a greater accumulation of moisture and nutrients, an improved texture for heavy weak-structural soils and a considerable increase in the grain crop yields.

The farmers became convinced with their own eyes that the introduction of intensive technologies for cultivating grain crops represents the most reliable method for raising the yields. In 1985, following their introduction into operations, the republic obtained approximately 450,000 additional tons of grain. Roughly 600,000 hectares of grain crops are being cultivated using the intensive technology in behalf of this year's harvest and by the end of the five-year plan -- 1.1 million hectares -- more than one half of the grain fields. This year the introduction of the intensive technology furnished the republic with 454,000 additional tons of grain.

As a rule, the agricultural crops cultivated using the intensive technology at all of the kolkhozes and sovkhozes are grown following the best predecessor crop arrangements. Technological charts, computations and working plans are being prepared. The buckwheat and spring wheat seed for this year's crops was raised to a high sowing condition in advance and with increased growth. The proportion of 1st and 2d class seed amounted to 80 and 92 percent respectively. At the same time, organizational measures were undertaken aimed at ensuring that the farms were supplied with mineral fertilizers, pesticides and retardants. Owing to a shortage of the specialized equipment required for work with the intensive technology, the machine operators of kolkhozes, sovkhozes and repair-technical enterprises of RAPO's [rayon agroindustrial associations] had to re-equip more than 1,700 sowing units, 1,900 plant protection machines and 1,300 mineral fertilizer spreaders. In addition, 637 dissolving units were prepared. The sowing was carried out during the best periods, with mineral fertilizer being applied to the rows. The crops were

treated against pests and diseases and soil herbicides were applied. All areas on which the intensive technology was being employed were assigned to brigades which work according to the collective contract method.

During the growing season for the plants, a great amount of attention was given to the tending of the crops and particularly to the application of top dressings and to harrowing. The farmers in Buinskiy, Drozhzhanskii, Aksubayevskiy, Novoshezhminskiy and a number of other rayons elected to use a very effective method for combating weeds -- the use of BS0-4 chain harrows. The repeated use of these harrows, together with herbicides, proved to be successful in clearing weeds from a majority of the fields. In addition, according to the machine operators and specialists, the working of the crops with BS0-4 harrows served as a type of "dry watering," since it promoted the retention of moisture in the soil which, under the conditions found this year, played a decisive role in the formation of the harvest. The specialists believe that one BS0-4 unit with an SP-16 hitch is required for every 300 hectares of crop.

The harvest season has always been a very busy and tense period for the farmers, one which crowns the work of a grain grower. The leaders and specialists of kolkhozes, sovkhozes and RAPO's [rayon agroindustrial associations] and the machine operators carried out a great amount of work in connection with making timely and high quality preparations for carrying out the harvest operations in an organized manner. After having undertaken measures to ensure the highly productive operation of equipment, many farms completed their grain mowing and threshing work in a very rapid manner. Here a principal role was played by the fact that the workload per combine has declined considerably throughout the republic in recent years. It is presently 93 hectares. During a day's time, up to 90,000 hectares are threshed. During the harvest period, efficient work was performed by the repair-technical enterprises, public catering service and by domestic services units. Thousands of machine operators, combine operators and motor vehicle operators performed in a selfless manner. The names of many of them have been added to the republic's Board of Honor and flags of labor glory have been raised in their honor. The collectives of grain receiving, procurement and transport organizations performed in a harmonious manner. Subunits of Tatagropromkhimiya, the Ministry of Land Reclamation and Water Management, scientists and specialists attached to the republic's Gosagroprom [State Agroindustrial Committee] all played their role in achieving high yields.

The collectives of industrial enterprises and construction organizations of cities and worker settlements are furnishing a great amount of assistance to agroindustrial production. City-dwellers are working hand in hand with the grain growers on threshing floors and on combines, in the construction of housing and production installations, in transporting the crops and in carrying out other work. The farmers are expressing their sincere gratitude to the plant workers who produced the popular KPKU-75 combine, 500 units of which have now been made available to the rural areas and in just 3 years -- 1,200 units.

Simultaneously with carrying out their harvest work, the republic's grain growers displayed tireless concern for next year's harvest. During the best

agrotechnical periods and in a high quality manner, the kolkhozes and sovkhozes sowed their winter crops on an area of 768,000 hectares, including use of the intensive technology on 450,000 hectares. The initial fall plowing work was carried out in an organized manner; the entire complex of autumn field operations was carried out successfully.

Fine crops of potatoes, vegetables and sugar beets have been grown in the republic and all measures are being undertaken to ensure that the plans for procuring these products are carried out successfully.

The farmers are aware that the positive results thus far achieved represent only the beginning of this work. The chief concern is that of consolidating and multiplying these achievements and making the experience of leading farms available to all kolkhozes and sovkhozes. Just as in the past, a priority is being attached to developing the production of grain. In order to carry out the plans successfully, develop animal husbandry operations and satisfy the internal requirements for grain, not less than 22-25 quintals of grain per hectare must be obtained in a stable manner. The task is truly a realistic one. This is clearly borne out by the experience of leading farms. But the successful solution of this task requires a great amount of effort. Organizational, economic and technological measures must be carried out aimed at further raising the productive strength of the land, which has been and continues to be the principal means of production.

Analysis reveals that high yields of grain, forage and other crops are being obtained on those farms where new zonal soil protective farming systems are actively being introduced into operations. A definite amount of work has been carried out in this direction. The structure of the area under crops has been improved. The amount of clean fallow has been increased to 456,000 hectares, compared to only 180,000 hectares in 1980. With regard to the forage crop structure, the sowings of perennial grasses have been increased by means of a reduction in the annual grass sowings.

The soil cultivation system has changed radically. The place occupied by traditional mouldboard plowing is being taken over more and more confidently by non-mouldboard loosening of the soil, with use being made of plows having special supports and sweeps. In the interest of ensuring use of the soil-protective cultivation technology, the Brezhnev Repair-Technical Enterprise produced more than 40,000 special housings.

A considerable increase took place in the use of anti-erosion measures. Compared to 1980, the volume of non-mouldboard cultivation work increased twofold.

A considerable amount of work has been carried out in recent years throughout the republic in connection with improving seed production. The proportion of regionalized varieties has increased to 98 percent, high reproductions -- to 72 and the sowing of 1st and 2d grade seed -- to 94 percent. New and highly productive varieties have been introduced into operations -- Chulpan winter rye, Moskovskaya 35 spring wheat, Drug oats, Truzhenik peas and large-fruited varieties of buckwheat -- Kazan Large-Grain and Idel.

Increases in the yields of grain and other agricultural crops are based upon a broad range of measures, among which first place is occupied by work with the land and the creation of a self-supporting humus balance in the soil. The level achieved at the present time in the application of organic fertilizers is not compensating for the total annual losses in humus which, according to studies conducted by the Volgogiprozem Institute, have amounted to from 0.4 to 1.3 percent over the past 20 years. In order to ensure a self-supporting humus balance, the kolkhozes and sovkhozes must annually apply not less than 9 tons of organic matter per hectare. At the present time, they are applying only 5.5 tons per hectare.

In order to preserve and augment the republic's humus supplies, measures have been developed and are being implemented for increasing the production and applications of organic fertilizers. A program has been launched aimed at sharply increasing the production of organic materials through an expansion in the peat procurement areas, the preparation of composts and the use of green manures, the area of which will increase to 250,000 hectares by 1990, compared to only 70,000 hectares in 1986. Special importance will be attached to the capital repair of fields -- KAKhOP -- the volumes of which will increase constantly. Over the past 5 years, they increased by a factor of more than 5. The expenditures will be repaid over a period of 2-3 years.

There are 1.5 million hectares of acid soil in the Tatar ASSR. We are presently applying lime to 330,000 hectares, that is, a five year cycle. The republic's requirements for lime materials amount to 2.6 million tons and we are producing only 1.4 million tons. At the present time, in order to cover the deficit, work has commenced on a new lime plant involving the use of earlier worked open-cut mine terraces, the capacity of which is 1 million tons. In view of the shortage of phosphorus fertilizers and the rich supplies of phosphorite meal at the Syundyukovskiy Open-Cut Mine in Tetyushskiy Rayon, the task has been assigned of extracting not less than 100,000 tons of this valuable fertilizer here. In addition, we are using the waste products of photo-gelatine production in the city of Kazan.

The carrying out of this program for raising the fertility of fields requires colossal efforts by the republic's Gosagroprom specialists, the leaders and specialists of kolkhozes, sovkhozes and all subunits of the agroindustrial complex, psychological reorientation in their work and also comprehensive assistance and support on the part of local party and soviet organs. In the absence of a solution for this problem, we will be unable to accelerate quickly increases in the production of both farming and animal husbandry products.

The current year has been a turning point in organizing protection for crops against pests and diseases and the attitude of farm leaders and specialists towards this most important agricultural measure has changed radically. Herbicides have been employed on approximately 2 million hectares of crops and toxic chemicals -- on 1.3 million hectares.

The use of shallow plows and combines with straw mincers is deserving of special attention. Stubble removal is a tested agrotechnical method for combating weeds and agricultural crop pests and diseases and one which

promotes the best preparation of soil and retention of moisture. Specialists attached to leading farms are of the belief that each brigade and section should be equipped with a shallow plow and that the workload must not exceed 300 hectares.

Over the past 6 years, 9,400 combines with mincers were imported into the republic. The majority of the specialists understand well the importance of their use in the campaign for raising labor productivity and lowering losses and expenditures during harvest operations. Approximately 5,600 of these machines were in operation out on the fields this year. At the same time, 100 percent use of them has not been achieved in all areas. Next year the plans call for the entire pool of combines with mincers to be placed in operation and, taking into account additional imports, more than 13,000 units should be in operation. At the present time, this means that all of the combines and wagons must be turned over to the repair-technical enterprises of RAPO's [rayon agroindustrial associations] for repair and restoration work. The equipment acceptance committees are headed by farm agronomists. The preparation of equipment for next year's field operations is being carried out in an active manner in the machine yards and workshops. Permanently active specialized teams are being created in the RTP's, kolkhozes and sovkhozes for the sharpening of disks and the repair of sowing machines, cultivators, harrows and other implements. This division of labor is raising productivity, lowering expenditures and it is annually reducing the idle time of machines caused by technical factors. The plans call for the pull-type machines to be moved up to the readiness line no later than 1 December and the harvesting and feed preparation equipment -- by 1 April of next year. We are attaching special importance to the correct storage of equipment at kolkhozes and sovkhozes and we are organizing competitive reviews for the best handling of this work.

Extensive use is being made throughout the republic of modules of light metal structures of the Tatariya type for the construction of machine yards, repair workshops, technical service stations of machine-tractor pools, spare parts storehouses and other installations of an agricultural nature. Commencing in 1987, 800,000 square meters of such modules will be produced at the Privolzhskiy specialized branch of Gosagroprom [State Agroindustrial Committee] for the Tatar ASSR.

The successful carrying out of the large and complicated tasks concerned with increasing the production of milk, meat and other farm products is associated with the production of feed. "Programma-50," which calls for the production of not less than 50 quintals of feed units of balanced feed per standard head of livestock, has been developed and is being implemented throughout the republic. Some farms have already achieved this level. But on the whole there are still many problems here. They must be resolved and mainly by raising the yields, improving the structure of the forage crop sowings, increasing the production of feed protein by expanding the areas for leguminous grasses, various feed mixtures and rape and by raising the return from irrigated lands. A large reserve for increasing feed production is that of raising the productivity of natural haying and pasture lands. Here we are making extensive use of sweep cultivation in combination with an undersowing of grasses and top dressings. The logistical base for feed production is in

need of further development and strengthening. The needs of each farm for good quality installations for the storage of silage, haylage and hay must be met. This will make it possible to reduce feed losses considerably and to improve the quality of the feed. Many years of experience have shown that high quality feed is obtained from storage in haylage towers. In Muslyumovskiy, Rybno-Slobodskiy and Yelabuzhskiy rayons, all of the feed storehouses are filled each year with the aid of special detachments. We will continue to build towers until such time as there is one for every 200 cows.

In short, there is a great amount of work remaining to be carried out. The completion of this work requires a complete mobilization of our strengths and resources, an increase in personnel responsibility and discipline and unity in work and action. The workers attached to the agroindustrial complex of the Tatar ASSR are sparing no effort or energies in the interest of successfully carrying out the decisions handed down during the 27th CPSU Congress, intensifying the work aimed at branch intensification and accelerating the implementation of the Food Program.

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#### Grain Production Stability Improved

Saratov STEPNEYE PROSTORY in Russian No 1, Jan 87 pp 16-17

[Article by M.I. Komarov, professor at Saratov Agricultural Institute: "Reducing Instability of Grain Production in the Oblast"]

[Excerpts] A principal trend in the campaign to achieve stable grain yields is that of further intensifying the operational technology for the cultivation of crops. Thus, in 1985, on all fields in Saratov Oblast on which the intensive technology was employed, the grain yields turned out to be higher than those obtained from conventional sowings. Hence, it was by no means an accident that the oblast's grain areas on which the intensive technology was employed were increased to 1,200,000 hectares in 1986. An average of 20.5 quintals of winter wheat per hectare was obtained from these areas, or 9.3 more quintals per hectare than that obtained using the conventional technology. The increase in winter rye amounted to 4.4 and spring wheat -- 6.3 quintals per hectare. On farms in Balashovskiy Rayon, for example, the grain crop yield from 17,000 hectares amounted to 27.1 quintals per hectare and in Kalininskiy Rayon -- 27.8 quintals per hectare from 28,000 hectares. At the Stal Sovkhoz in Petrovskiy Rayon, 35 quintals were obtained from each hectare, at the Rodina Kolkhoz in Balashovskiy Rayon -- 36 and at the Oktyabr Kolkhoz in Tatishchevskiy Rayon -- 35 quintals per hectare. This was 6-7 quintals per hectare more than that obtained from fields on which the conventional technology was employed.

Naturally, one might ask what caused the reduction in the grain yields from fields on which the conventional technology was used. We are of the opinion that there are several such causes. Allow us to cite some of them -- low quality seed, insufficient areas on which local applications of fertilizer

were carried out or airborne top dressings employed, low quality tractor operations, high level of field weediness, violations of the schedules for and the quality of harvest operations and others.

For the future, the oblast's workers plan to increase the grain field area on which the new technology is employed to 2.5 million hectares. This is a great responsibility. Preparations must be made today if this work is to be carried out. The chief method for solving this task -- mastering the scientifically sound farming system and the use of a differentiated approach which takes into account the natural-economic peculiarities of the oblast's seven microzones.

Reductions in grain production are influenced to the greatest degree by the ruinous effects of a severe dry climate during the growing season, extensive field weediness, the low effectiveness of small fertilizer dosages and by other organizational-technical factors. The elimination of these problems is considered to be a continuing task for the farmers.

The key to achieving success in farming, as the experience of past years has shown, lies in the extensive use of intensive technologies that produce tremendous results. But an intensive field requires greater expenditures. These expenditures are repaid only in those areas where the crops are well tended.

Poor sowings of winter crops must be resown as a result of violations of the agricultural practices. Miscalculations bother the consciences of the agronomists. The fields of poor agronomists are characterized by suspicious signals and examples of unfinished work. This applies in particular to the structure of the areas under crops. It is determined by the kolkhozes and sovkhozes based upon the chief requirement: achieving an increase in the return from each hectare. But this factor is not being taken into account in all areas. The actual grain crop structure on some farms, for example in Romanovskiy, Rtishchevskiy, Atkarskiy, Bazarno-Karabulakskiy, Engelsskiy and Marksovskiy rayons, is not in keeping with the crop rotation plans. Here the winter crops must occupy 35 percent, spring wheat -- 14, millet -- 8 and grain forage -- 43 percent, including pulse crops -- 6 percent of the grain crop area and yet the actual proportions for these crops in 1985 were 13, 23, 10, 54 and 2 percent. Thus the actual structure of the areas under crops is characterized by a low proportion of winter and pulse crops and by an excess of spring grain crops, mainly barley.

In recent years, the experience of many farms has underscored the importance of annually achieving stability in the optimum areas for winter grain crops and clean fallow, in conformity with an efficient alternation of crops in a crop rotation plan. This is borne out by the leading experience of kolkhozes and sovkhozes in Sovetskiy, Krasnokuktskiy, Fedorovskiy and other rayons.

On farms in the western microzone and in many other zones, winter crops, including those in behalf of the 1986 harvest, as a result of well-known reasons, occupied one half of the required area and less than the amount called for in the scientifically sound farming systems.

Based upon this fact, it will be necessary during the 12th Five-Year Plan to have a guaranteed clean fallow area of not less than 930,000 hectares compared to 772,300 hectares on the average during the 1981-1985 period. According to data furnished by the Elita Povolzhya NPO [scientific production association], each hectare of clean fallow in the clean fallow - grain crop group ensures an increase of 8.7 quintals compared to a group with occupied fallow. An expansion in the clean fallow area to the amount called for in the scientifically sound farming systems, by 157,700 hectares, will provide an additional gross grain yield of 137,200 tons and in an evaluation according to the procurement prices -- 14 million rubles. The additional income realized from raising the quality of the grain will amount to 9.31 rubles per hectare, or 1.5 million rubles for the entire area. It is a matter of honor for a leader and specialists to carry out their crop rotation plans in conformity with the natural and economic conditions.

Thus the stability of grain production in the oblast is largely determined by the optimum structure for the area under crops and by the supplies of moisture in the root inhabiting layer of soil in the oblast's microzones. The supply of moisture can be increased through an accumulation of the snow cover, by reducing the runoff of thaw water and heavy rainfall and through the selection of optimum cultivation methods.

A comparatively cheap method for retaining snow is that of growing windbreak strips on winter crop sowings and autumn plowed land.

More extensive use is being made of windbreak strips on fallow land. In 1984, such strips were sown on 243,000 hectares, that is, on one third of the area and yet the scientific institutes and production practice are still not attaching importance to the use of this method on autumn plowed land. And indeed an area of 5-6 million such hectares is needed! This method of snow retention is replacing snow plowing and thus reductions are taking place in fuel and labor expenditures and in farm monetary expenditures. Windbreak strips ensure a more uniform distribution of snow over the surface of a field. According to data accumulated over a period of many years at the Institute for the Southeast (on average for 20 years), strip fallow raises the productivity of winter crops by 5-6 quintals per hectare compared to clean fallow.

During the last five-year plan, very little slotting was carried out on agricultural lands, on arable land -- only on an area of 21,000 hectares and on haying and pasture lands -- 4,200 hectares. In the future, this work must be carried out on an area of 370,000 hectares.

The strip disposition of crops and plowing with subsoiling and by contour have been introduced into operations only on isolated farms.

The regrassing of eroded lands is being carried out in a very weak manner. Roughly 600,000 hectares must be regrassed using perennial grasses and yet this work is being carried out on only 12,000-23,000 hectares annually.

Heavy rainfall washes away up to 60-80 tons of fertile soil per hectare from arable fields and the most reliable means for protecting against catastrophic erosion is that of planting 20-30 meter strips of early spring crops or

perennial grasses on fallow fields, crosswise to the slope, every 100-150 meters. The work concerned with strip placement of crops and the regrassing of land must be carried out on an urgent basis -- this will raise the feed balance of farms and protect the soil fertility against drainage and erosion.

Timely protection for cultivated plants against weeds, pests and diseases is an important element of the intensive technology employed in scientifically sound farming systems. It has been established that grain crop losses caused by pests and diseases at times reach 20-30 percent of the overall harvest. An equal amount of harm is caused by weeds, especially when the quality of soil cultivation is low or when the optimum periods for carrying out the work are overlooked. Favorable conditions for the germination of weed seed and for aftergrowth in the rosettes of perennial plants occurred in the autumn of 1985. Stubble removal work was carried out on only 9.6 percent of the arable land.

In past years, more attention was given throughout the oblast to the schedules for carrying out autumn plowing work. For example, the volume of autumn plowing work carried out prior to 15 September during the 1982-1984 period was 64 percent and during the same time frame in 1985 -- only 44 percent.

The use of early autumn plowing requires that it be tended according to the type of bastard fallow. However, this is not being done. The autumn plowed land is becoming overgrown with fallen fruit and various weeds, it is becoming packed and thus only weak results are being realized from it.

Under the conditions found in the oblast, pre-sowing cultivations do not lower the weed content of fields to be used for early crops and thus a need exists for employing chemical weed control operations. Approximately 70 percent of the herbicides are applied with the aid of aviation. Under drought conditions, the effectiveness of airborne sprayings is lower than when use is made of ground equipment. Moreover, ground equipment is available only in limited quantities on the farms and it is of poor quality. The available sprayers are being employed in an unproductive manner. They have poor atomizers and as a result there are large liquid expenditures. In addition, they are dangerous to operate since they lack cut-off valves.

A high level of field weediness results in wasteful use of mineral fertilizers. The reason for their low effectiveness derives from the fact that they are used for the most part without taking into account the planned yields. In addition, the fertilizers are not applied during the optimum periods. This occurs owing to the fact that approximately 60 percent of a farm's annual funds are received during the first and fourth quarters, that is, at a time when the fertilizers cannot be applied and thereafter are stored in unsuitable facilities. The majority of the storehouses were not built for the all-round mechanization of loading and unloading operations. Moreover, they lack mixing units. The principal areas of non-irrigated land are not being supplied with sufficient fertilizer. For example, of 196,000 tons of mineral fertilizer delivered to the oblast in 1985, 101,000 tons were applied to irrigated lands. In other words, only 96,000 tons or 16 kilograms of

active agent per hectare were made available for 6 million hectares of non-irrigated land, whereas 200 kilograms of active agent per hectare, or more by a factor of 12, were made available for the irrigated lands.

It was established that under the conditions found in the southeast region, the payment for 1 quintal of fertilizer is equivalent to 7 or 8 quintals of grain per hectare. These computations reveal that we applied only row fertilizers in behalf of grain crops and yet in order to obtain a yield on the order of 20 quintals per hectare we must remove 70 kilograms of nutrients from the soil, that is, 4.5 times more than we are applying. The plants obtain the missing nutrients from the humus elements created earlier in the root-inhabiting soil layer.

These and other areas of neglect and shortcomings precluded the possibility of obtaining the planned yields during the past five-year plan. The average gross yield of grain during the 1981-1985 period amounted to 4,023,000 tons, compared to 5,160,000 tons during the 1976-1980 period, a reduction of 28 percent. Grain production by years fluctuated within the limits of 6.2 million tons in 1983 and 2.0 million tons in 1984. During the 11th Five-Year Plan, 39 percent less grain was added to the state's granaries than the amount delivered during the 10th Five-Year Plan.

The rayon agroindustrial associations played a great role in raising the expertise of farm specialists. Their task consists of not dictating the schedules for sowing or carrying out weed control operations and not distracting the agronomists with an excessive flow of paper work. Rather, they must furnish assistance in correctly distributing the funds and resources in the campaign to obtain high yields. The RAPO's must strengthen the links between science and production. It is important for collaboration to produce a proper return not only in the future but also today.

Based upon the initiative of many committees and kolkhoz and sovkhoz bureaus, the certification of personnel and the preparation by agronomists and engineers of their own personal creative plans is being introduced into operations. This represents control and a form of training. Special importance is being attached at the present time to developing and supporting the initiative being displayed by specialists and to providing them with complete independence in their work out on the land. However, a majority of them are still employing obsolete methods and are not keeping pace with the spirit of the times. The flow of instructional directives from the rayon center is continuing and the chairman of a kolkhoz or a sovkhoz director recognizes that it is wrong for an instruction issued by an agronomist to be cancelled without basis or reason. It is clear that this is damaging to one's enthusiasm and confidence. Such incidents must be eliminated in a decisive manner.

New contingents of specialists from VUZ's and technical schools arrive in the rural areas. It is a matter of honor for them to be welcomed in a warm and friendly manner, to be provided with housing and to be assisted in adjusting to the work situation. Improvements in the effectiveness of all APK branches, including a solution for the grain problem, are dependent upon the work carried out by specialists in the rural areas.

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#### Changing Weather Conditions

Saratov STEPNEYE PROSTORY in Russian No 1, Jan 87 p 21

[Article by Ye.A. Kuznetsova: "What Were the January Months Like?"]

[Text] "Summer affects winter and winter influences summer" -- here the thought essentially has to do with the degree to which crops are affected by the weather conditions of a particular season of the year. Thus, is there not good reason for the popular saying that "weather governs the fields?"

People have always discussed changes in the climate. Let us glance at history. For example, in 1821 the French Minister of Internal Affairs wrote in a circular letter concerning "a considerable cold snap, sudden changes in the seasons of the year, extreme hurricanes and floods." In 1779, an abundance of snow and unusually severe winter conditions were observed throughout Europe (in Russia, birds froze on the wing in the Kalmyk Steppe region). Similar winters occurred in 1579 and 1679.

There can be no doubt but that on the earth's vast territory there is always some area where the weather at a given moment is acting in a very unusual manner. This then seems to justify the saying of the older generation which maintains that the climate was different in earlier times.

But here are some facts and figures. According to data supplied by the Saratov Hydrometeorological Observatory, over roughly the past 30 years there were nine Januaries that were characterized by unusual temperature conditions. Of this number, six (1955, 1971, 1975, 1981, 1983 and 1984) were "warm," that is, they had average temperatures which were 6-8 degrees higher than the norm and three (1954, 1969 and 1972) -- with sharply lower temperature regimes and reduced amounts of precipitation. But one should not draw serious conclusions concerning a change in climate based upon one area, continent or even hemisphere. Instances of weather deviations from its previous norm are observed almost every day for the earth as a whole. It was also this way in the past. But today, as a result of modern means of communication and a well organized system for exchanging information, we learn about these deviations more often and on a more regular basis than was possible in the past.

Cyclical fluctuations in climate on the order of light cold snaps or warming trends are typical. Thus, during this century there have been several periodic and alternating warming trends and cold snaps in the east European region of the northern hemisphere. The warming trend during the winter periods of the 1920's was replaced by cold snaps during the 1940's.

Thereafter, warming trends appeared once again during the 1950's and 1960's. The cold snap which began in 1974 has obviously still not ended. Meanwhile, the next warming trend is expected to occur during the last decade of this century.

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**EXTRAORDINARY WEATHER CONDITIONS IN DONETSK OBLAST****Record Snow in Donetsk Oblast**

Moscow IZVESTIYA in Russian 3 Mar 87 p 3

[Article by N. Lisovenko, IZVESTIYA correspondent: "There Has Not Been Such Snow for an Entire Century"]

[Text] Donetsk Oblast--"Meteorological observations have been made for 105 years in the Donbas and there has never been so much snow," explains Valentin Nikolayevich Sakayev, director of the Donetsk Hydrometeorological Observatory. "From December through February 70 centimeters fell in the oblast."

Of course, grain growers are always thankful for snowy winters. After all, moisture in the steppe is insurance for the harvest. Therefore, all sovkhozes and kolkhozes in Donetsk Oblast zealously undertook snow retention work. It is important not to let the water run off into rivers and ravines. There has been practically no rain here since last July. Therefore, some farms were not able to plant the planned volumes of winter crops. There is now hope for the spring crops. They will occupy unprecedentedly large areas -- more than a million hectares.

Moisture is needed not only by grain crops, but by vegetable and feed crops. There are 700,000 cubic meters of water in ponds and reservoirs used to irrigate Donetsk cropland.

Nikolay Petrovich Borisenko, chairman of the Kolkhoz imeni Kirov in Marinskiy Rayon and a Hero of Socialist Labor reckons, "Today we are like the possessors of a legendary treasure, however, even in the legend the treasure was provided only to those who liked to work."

Above all, to those who are able to regulate the runoff from snowmelt and to fill ponds and reservoirs.

This year the severe December frosts did not turn the dried out land into a monolith. Because of this, Donetsk farm machinery operators went out into the fields with slit trenchers, broke up the ground down to a half meter, mixed it with snow, thus covering the snow with dirt and retaining meltwaters.

According to data from the All-Union Scientific Research Institute for Corn, this method will save an additional 350-400 tons of moisture per hectare.

However, there are difficulties. During December, January and February 5,000 kolkhoz and sovkhoz tractors and road repair machines and almost 10,000 operators conducted an almost daily struggle to keep roads open. Equipment was used to help railroaders, workers in the coal, machinery building and other industries. These operators showed great endurance and deserve much sincere praise. However, in the process, they burned up an additional 5,000 tons of diesel and 4,000 tons of gasoline. Also, the severe winter required poultry industry workers to heat hatcheries (they are warmed by heaters using solar oil), burning another 1,800 tons of fuel more than planned.

Unfortunately, neither Ukrainian SSR Gosagroprom nor the UkrSSR State Committee for Petroleum Products have decided how to make up for the shortages.

There is a very acute problem about pre-fieldwork repairs on thousands of crawler and wheeled tractors which worked as bulldozers to remove snow. During this snow removal work there was a lot of wear and tear on tractors, especially DT-75s. Most of them need repairs on their engines, transmissions, clutches and tracks.

The snow is reason to hope that this year farms can have a good harvest of corn. However, they need something with which to harvest it. There are never enough combines. So the party buro of the Donetsk Obkom decided that by combining their efforts 30 Donetsk factories could build 300 of the KSS-2.6 corn harvesters in 1987. By the end of the Five-Year Plan the Donbas could build 1,000 of them.

The same work is also planned in other oblasts in the Ukraine -- Dnepropetrovsk and Vinnitsa. The goal is to provide farmers with an additional 2,500 machines during the 12th Five-Year Plan. The Kramatorsk Heavy Machine Tool Building Plant imeni Chubar and the Slavyanskiy Experimental Plant for NII Metmash [Scientific Research Institute for Metalworking Machinery] intend to assemble combines. Many enterprises have already begun production preparations and some have started producing, counting on Ukrainian Gosplan to, from the first of the year, supply the "combine building" with stocks of the required types of metal and parts. However, two months have passed and Ukrainian Gosplan has not taken any noticeable steps.

Winter presented Donbas workers with many difficult problems. Many of them are being overcome on the spot. It would be good if the needed support were provided

#### Situation in Volnovakhskiy Rayon

Moscow IZVESTIYA in Russian 7 Apr 87 p 1

[Article by N. Lisovenko: "There is a Reserve Alternative"]

[Text] Donetsk Oblast--Even last autumn it was clear that grain growers could expect a difficult test in the struggle for the harvest. In Volnovakhskiy

Rayon, Donetsk Oblast, for example, the main crop is winter wheat. Because of the serious drought less than half the area allocated to crop was planted. Because it was planted in the autumn it developed poorly. This is why, after evaluating the situation the RAPO Council worked out a reserve alternative assuring planned grain harvest. Since autumn farms have been implementing it.

During the preparation of the soil for spring crops, all 40 kolkhozes and sovkhozes in the rayon leveled the soil where it was required, and not only on sections for grain grown by intensive technology. This makes it possible in the spring to not lose any time in starting cultivation, applying fertilizer and planting barley. A backup crop has been selected to replace winter grain crops which were not planted or did not survive the winter.

This year the spring crop area in Volnovakhskiy Rayon will be huge -- 90,500 hectares. But it is planned to harvest 221,000 tons of grain from it and to meet the needs for feed grains.

Growers considered this year's heavy snows as a great benefit. Everything possible was done to retain snow on the fields. Specialists now estimate that each Volnovakhskiy field has at least 1,500 cubic meters of water (in the form of snow) per hectare.

This is good. However, the capricious weather brought a new surprise. Spring in the Donetsk Steppe is now two weeks late. This means that as soon as the Sun warms the fields the upper layer of ground will absorb the melted snow down to a depth of 40-50 centimeters and become difficult for equipment to traverse. Growers will have no time to sit around and cannot lose a minute.

Taking all these factors into account, Volnovakh's growers are making plans. For example, they decided not to use wheeled tractors to work the fields for early grain crops. Machinery is hitched up only behind crawler tractors.

N. Ilyushin, the chief agronomist at the Volnovakhskiy RAPO, explains, "All crawler tractors at kolkhozes and sovkhozes were mobilized, even bulldozers and ones used to move sprinklers. Thus, we had 600 crawler tractors rather than the 400 which had been previously planned for planting work. Work plans call for concentrating equipment so that right after tilling, applying fertilizer and planting, we can conduct post planting operations. There are also other alternatives. If spring is rainy, we can hitch harrows behind the grain drills to cover up the moisture, while if it is dry we can use rollers."

Here is another detail. All crews have two shifts of operators. At night, when there will probably be ground frosts, they can work the soil, while in the day they can plant. This maneuver will help them plant early grain crops in five days. This is a very tight, but realistic schedule.

This year grain will occupy 67,250 hectares in the rayon. In order to obtain the planned harvest 32.9 quintals will have to be harvested from each hectare. Only twice previously have we done this. All hopes for success the third time are placed upon the use of intensive technologies. Corn, wheat and barley are being grown by intensive technologies on 35,000 hectares. This will only pay

off if the yields are 10-12 quintals per hectares higher than for normal methods.

Volnovakh grain growers have long been famous as being among the best in the Donbas. This year also they have done much to meet the goals. Farms in the rayon have stored 6,000 tons of ammonia liquor and 3,000 tons of liquid compound fertilizers, quite sufficient for top dressing crops. As indicated on the technological cards, fertilizer will be applied in "a moist layer of soil". Thought has also been given to how to apply fertilizers to crops after they sprout. High class seed has been prepared and herbicides and fungicides brought in. Every one of the 2,000 machinery operators has been trained and certified. They have also thought about the harvest here. Additional equipment is already arriving so that each combine will harvest 100 hectares and harvest losses will be eliminated.

N. Yeremenko, ispolkom chairman at the Volnovakhskiy Rayon Soviet of People's Deputies, said, "It seems as if we have studied and done everything, but, I won't hide my feeling of concern. In such a spring the slightest lack of coordination can reduce grain growers' efforts to naught."

There are reasons for the Volnovakh growers' concerns. Usually the rayon's farms have 7,700 tons of diesel and 5,600 tons of gasoline on hand for spring fieldwork. This year much fuel had to be used to plow snow on farms, roads and settlements. This is why kolkhozes and sovkhozes only have about 1,000 tons of solar oil and 500 tons of gasoline. This is on the eve of a very serious test, when planting times are reduced to the limit and the work volume is growing. Moreover, the weather is unknown.

Also, this winter the equipment became quite run down. The reliability factor for tractors and vehicles repaired first in the autumn and again this spring, has declined sharply. The rayon has still not received spare parts, although there were vague promises of additional deliveries.

In short, these troubles concern all Donbas kolkhoz and sovkhoz collectives. There are only a few days until the start of fieldwork. One wants to think that Ukrainian Gosplan and the republic Council of Ministers will participate and find the possibilities of helping growers stick closely to their reserve alternative. The question as to whether or not there will be grain this fall is being solved today.

#### Bad Weather Slows Railroad

[Moscow GUDOK in Russian 17 Mar 87 p 1]

[Article by B. Sverdlov, GUDOK correspondent: "Heavy Snow"; first paragraph is source introduction]

[Excerpts] It has been an unusually severe winter in the southern Ukraine. In the last few days, a thick layer of snow has fallen upon many Donetsk railway stations and branch lines.

It is really a pity that I was not with the crew of the snow plow which came in from Yaroslavl to Debaletsevo to make what was, without exaggeration a heroic six kilometer run from Borzhikovka Station to Mine No. 3 in Bergulevka. This was through 4 meter deep snow and according to accounts by eyewitnesses, in a "devilish blizzard with zero visibility". It tested the "SMKU" for durability and the people for endurance and courage. For 15 hours two empty wagons followed the machine.

At the same time 12 buses full of miners and machinery builders left Gorlovka for the division. The staff designated 12 escorts to the place of work. That day only 1,200 people were sent to Uglegorsk. It was not easy for A. Kotyukov, the roadmaster. He had to instruct the people arriving, divide them into groups, assign two signal operators to protect each group and supply them all with shovels and mittens. This winter the division needed 35,000 shovels and had to haul in truckloads of mittens. The snow is much easier to handle in the day than at night. In the darkness a bus went into a snowbank and did not reach its destination. Work groups beat a path to the station During strong winds the local managers had to get to work by the shuttle method: some people cleared out switches at yard necks, while others dug out trains on station tracks.

It was a heavy snow and it got heavier everywhere. In these spring days the sun's rays are like needles, penetrating into the snow and leaving deep wounds. During the day the snow cover becomes friable and then it is attacked at full force by people and equipment. They try to get it away from the yard. The further away the less danger of flooding.

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## BRIEFS

VOLGA RAIL SHIPMENTS--The Saratov Volga region is under a thick cover of snow. But spring field operations will commence here in just a month's time. Together with the region's farmers, the railroad workers attached to the Krasnyy Kut Station are accepting responsibility for the harvest. Our personnel are exercising strict control over each freight car carrying agricultural machines, fertilizers and spare parts and each tank car filled with fuel. During the initial days of March, we completed the task of shipping millet and barley seed to the North Caucasus and other grain sowing areas in the southern regions of the country. Together with elevator workers, we shipped almost 4,000 tons. [by V. Duvanov, chief of the Krasnyy Kut Station] [Excerpts] [Moscow GUDOK in Russian 10 Mar 87 p 1] 7026

SARATOV GRAIN PRODUCTION--For several years now, the grain growers in Saratov Oblast have been under an obligation to the state in connection with grain sales. At the present time, the farms are undertaking measures aimed at raising the return from the fields. The kolkhozes and sovkhozes are making thorough preparations for the spring sowing work. They have been supplied fully with the seed required for all of their spring crop fields --approximately 4 million hectares. Contractual collectives are being created in all areas, with wages based upon the final output. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 12, Mar 87 p 9] 7026

GOOD QUALITY SEED--Kazan, 9 Oct--The kolkhozes and sovkhozes in Drozhzhakovskiy, Alkeyevskiy and Oktyabrskiy rayons already have at their disposal roughly 82-97 percent of the 1st class seed needed for the spring crops of next year's harvest. Timely sorting and grading of the seed made it possible for many other farms to obtain a reliable supply for the spring period of the second year of the five-year plan. For the autonomous republic as a whole, 85 percent of the seed conforms to the requirements for 1st and 2d class of the sowing standard. Specialized teams and brigades are continuing to process the grain. The grain cleaning machines are operating in two shifts in a majority of the rayons. [by V. Goncharov, SELSKAYA ZHIZN correspondent] [Text] [Moscow SELSKAYA ZHIZN in Russian 10 Oct 86 p 2] 7026

SNOWPLOWS IN ACTION--Hundreds of snowplows have been moved out onto the fields in Kuybyshev Oblast. Recent snowfalls added considerably to the supplies of winter moisture. In order to prevent the wind from spreading the snow among the ravines and gullies, the machine operators are displaying haste in carrying out their snow retention work. White plowing must now be carried out on an area of 2 million hectares. The field crop growers in Koshkinskiy, Chelno-Vershinskiy and Alekseyevskiy rayons are the leaders in carrying out this work. [Text] [Moscow PRAVDA in Russian 5 Feb 87 p 1] 7026

NAVIGATION SEASON COMMENCES--Kuybyshev--The first steamship whistles have sounded in the central Volga region. The icebreakers Kapitan Krutov and Dnepr have commenced breaking up the ice in the Kuybyshev area. After clearing away the approaches to the piers for the oil-tanker fleet, they will be sent further south on the Volga for the purpose of making a path for the first convoys of ships. The 1987 navigation season is commencing. [Text] [Moscow SELSKAYA ZHIZN in Russian 21 Mar 87 p 1] 7026

MINERAL FERTILIZER APPLIED--Astrakhan, 17 Feb--Taking advantage of a thaw period, the farmers in many of the oblast's rayons are applying mineral fertilizer top dressings to their winter crops. The sovkhozes Yubileynyy and Travinskiy were the first in Kamyzyakskiy Rayon to complete this work. Other farms are also engaged in applying top dressings. At the same time, the region's kolkhozes and sovkhozes are applying mineral fertilizer to their natural feed lands. The use of this important agrotechnical measure will aid the Astrakhan plant growers in raising the return from their winter sowings of annual and perennial grasses. [by A. Golovko] [Text] [Moscow SELSKAYA ZHIZN in Russian 18 Feb 87 p 1] 7026

VOLGA ICE CONDITIONS--Astrakhan--Navigation is already open in the Astrakhan roadstead, while the upper Volga region is paralyzed with ice. According to our supernumerary correspondent V. Kornilov, the thickness of the ice this year has reached a meter or more in some sectors. In order to hasten the opening up of the season for the oil-tanker and passenger fleet, the powerful icebreaker Kapitan Bukayev departed Astrakhan in March. Today it completed a distance of 400 kilometers. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 4 Apr 87 p 1] 7026

WINTER SNOWSTORM--Elista--The snowstorm raged for several days without abatement. Over a period of several dozens of years, the Kalmyk livestock breeders had not experienced such an onslaught by the elements. It was as though the collective at the Stepnoy Sovkhoz in Sarpinskiy Rayon had been forewarned regarding the severe winter. Here, the livestock facilities and housing elements had been repaired in advance, an insurance supply of feed was laid away and the personnel were fully supplied with specialized clothing. And with the beginning of the indoor maintenance period, operational groups capable of solving all problems independently and correcting emergency situations swung into action. It was by no means an accident that even the most dire warnings by the steppe meteorologists were accepted in a very calm manner. The sovkhoz was able to complete successfully the fattening of 720 young bulls, the average weight of which was almost one half ton, and to fulfill the quarterly task for the sale of meat. Alarming situations had developed on other farms. The feed supplies were good for only 2-4 days and it was difficult to add to them owing to the snow cover. There were many weakened livestock and outright losses as well. During January alone, approximately 2,000 sheep and 100 head of cattle were lost in Sarpinskiy Rayon. Nor was the situation any better in Priozerniy, Tselinniy, Yustinskiy or a number of other rayons. The economists had not passed their winter examination. [by P. Shamrayev, SOVETSKAYA ROSSIYA--TASS] [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 5 Feb 87 p 1] 7026

ICEBREAKER ON THE VOLGA--Astrakhan--The powerful icebreaker Kapitan Bukayev has commenced breaking up the ice on the Volga from Astrakhan to Volgograd. The situation this year on this 400 kilometer sector of the route is more complicated than usual. The ice is still very strong, with its thickness reaching 1 meter in some areas. The thickness is complicating the work of the ship's crew. Nevertheless, during the next few days the ship will reach the final goal of its passage; it will have forced a passage along the great Russian river. [Text] [Moscow SELSKAYA ZHIZN in Russian 28 Mar 87 p 1] 7026

CSO: 1824/214

## FEED CROP INTERPLANTING IMPROVES BSSR PROTEIN BALANCE

Minsk SELSKAYA GAZETA in Russian 25 Mar 87 p 2

[Article by L. Kukresh, Doctor of Agricultural Sciences and head of the Department for the Production Technology for Pulse and Groat Crop Products of the Belorussian Scientific Research Institute of Farming, under the rubric "In Aid of Agronomy" : "Companion Crops -- A Feed Reserve"]

[Text] Prior to the end of the five-year plan, the republic's plans call for the use for forage purposes of approximately 4 million tons of grain annually. The livestock breeders are confronted by the task of making efficient use of it in the interest of achieving a higher output yield. However, the grain of cereal grass crops contains very little digestible protein; for one feed unit there is no more than 80 grams, compared to a physiologically sound norm of 105-110 grams. Hence the deficit in digestible protein in grain forage will amount to approximately 100,000 tons annually.

Pulse crops constitute the principal source for balancing grain forage. Peas, spring vetch and fodder lupine are being grown extensively throughout the republic. Their biological potential is adequate and yet a high productivity is achieved for these crops only under the conditions of intensive cultivation. A shortage of fungicides, herbicides, defoliants and harvesting machines is still restraining the production of plant protein in the required volumes. Thus great practical importance is being attached to companion sowings of grain forage crops with pulse crops -- peas and spring vetch.

The essence of interplanting consists of adding 15-25 percent pea or spring vetch seed to a similarly reduced sowing norm for oats, barley or spring wheat. This method was developed at the Belorussian Scientific Research Institute of Farming and has undergone production testing at oblast experimental stations.

The sowing was carried out using conventional CZ-3.6 grain drills and the area of the record plot was 1,000 square meters, with threefold replication, that is, the conditions were very close to production conditions.

The experimental material obtained testifies to the fact that companion sowings of oats, barley and spring wheat with peas and spring vetch are effective not only for the purpose of increasing the production of plant

protein but also for raising the grain crop yields. On the average, the yield of a vetch-oats grain mixture on sandy loam soil surpassed a pure sowing of grain crops by 5 and a vetch-barley mixture -- by 2.9 quintals per hectare. The yield from a grain mixture of oats with peas on this same type of soil remained at the level for a pure sowing, while pea-barley mixtures turned out to be equivalent to vetch-barley mixtures. On loamy soil, companion sowings were also more productive than pure sowings in the majority of cases.

By maintaining up to 15 quintals of a pulse component per hectare in a grain mixture, the yield of digestible protein increases by a factor of 1.5-2 from interplantings of grain crops, with the average amount of digestible protein per feed unit, according to tests carried out on sandy loam soil, being 95-126 grams and on loamy soil -- 90-107 grams, depending upon the type of interplanting and the pulse crop.

In the case of interplantings, spring vetch offers a definite advantage when used as a companion crop. However, in connection with this year's production, greater use must be made of mixtures containing peas, since the amount of herbicides suitable for use in vetch-cereal grass mixtures is limited throughout the republic.

Throughout the republic as a whole, use must be made of three types of mixtures. On loamy soils, for farms having a low degree of field weediness and also when prometrine is available for chemical weeding -- mixtures of oats, barley and spring wheat with spring vetch, in which 0.5 million vetch seed per hectare are added to the sowing norm for a cereal grass crop that is reduced by 15 percent -- mixture No. 1. It contains more protein and must be used mainly for feeding to hogs and poultry. On weedy light and medium loamy soils (and they are in the majority) and also on sandy loam soils with underlying cohesive strains, 0.2 million pea seed per hectare are added to a sowing norm for oats, barley or spring wheat that is reduced by 15 percent -- mixture No. 2. On sandy loam soils with underlying loose strains, use is made of mixture No. 3: 0.4 million maple pea seed per hectare are added to a sowing norm for oats or barley that is reduced by 25 percent. Mixtures Nos. 2 and 3 are more suitable for feeding to cattle.

The interplanting of winter grain crops with peas and spring vetch is not very effective owing to the varying developmental phases for the components of the mixture, the strong oppression of the pulse crops and their low yield as a result of the latter. Winter vetch possesses a low potential productivity in terms of grain. While not exerting a noticeable effect on the protein content of the grain mixture, it creates considerable harvesting difficulties during damp years.

Companion crop sowings for grain forage crops do not require considerable expenditures of labor or material resources. The soil cultivation, the sowing schedules and methods, fertilizer dosages and the materials employed for protecting the plants against pests and diseases are all the same as those used in conjunction with the intensive technology for cultivating grain crops in pure form. Nitrogen dosages in excess of the optimum dosage for a cereal grass crop must not be applied. During sowing, the seed for a companion and pulse crop in the required ratio should be thoroughly mixed in order to ensure

uniform distribution of the components. There is no need for raising the content of the pulse crop component in the sowing norm higher than the recommended figure, since this could result in strong lodging of the crop, it could complicate the harvest operations and the content of peas and vetch in the grain mixture would not increase proportional to the density of their sowings.

In connection with interplantings of grain crops, substantial changes take place in the system for the use of herbicides. Preparations of the 2.4D group are unsuitable in this instance. Only prometrine in a dosage of 0.6-0.8 kilograms per hectare of active substance can be used in companion crop plantings which involve the use of vetch. In mixtures with peas and maple peas, additional use is made of bazagran (1.5-2 kilograms per hectare), 2M<sup>4</sup>KhM (1.5-2 kilograms per hectare) and a mixture of 2M<sup>4</sup>KhM (1.2-1.5)+2M<sup>4</sup>Kh (0.3 kilograms per hectare). During a period of insufficient moisture in the spring in the upper soil layer, prometrine is applied prior to pre-sowing cultivation and during a period of normal moisture -- following sowing and prior to the appearance of seedlings. The remaining herbicides are employed for growing plants during the phase of three leaves for a pulse crop component.

The harvesting of companion grain crops, assuming the recommended sowing norms and normal meteorological conditions (the average level over a period of many years), is carried out by means of direct combining during the complete ripeness phase of the cereal grass component. Two-stage harvesting is employed only when there is a raised amount of precipitation during the second half of the growing season, followed by the formation of abundant biomass in the pulse crop component. The mowing is carried out using ZhSK-4A, ZhSK-4B and ZhRB-4.2 harvesters. Neither tractor nor self-propelled mowing machines are suitable for this work, since the losses which occur exceed the agrotechnically permissible norms. In this instance, the harvest work is started at the commencement of complete ripeness in the cereal grass crop. During this period, peas ripen or reach the phase of yellowing of the beans and vetch -- browning of the beans in the lower canopies. For any harvesting method, the grain mixture is dried out in dryers at a raised temperature for the heat carrying agent, since the retention of a high germinative capacity is not the goal in this instance.

The companion crop method is being employed extensively throughout the republic and many farms are obtaining fine results. For example, in 1984, at the Druzhba Kolkhoz in Kamenetskiy Rayon, a companion crop sowing of barley on 85 hectares produced a yield of 53.2 quintals, whereas the average yield obtained from pure sowings of barley was 41 quintals. In 1985, at the Krasnaya Armiya Kolkhoz in Rogachevskiy Rayon, oats and barley were interplanted on 800 hectares with peas and the average yield for the barley-peas grain mixture was 40.9, oats and peas -- 39.9 quintals and the pea content was 8-12 quintals per hectare. This same year, the Put K Kommunizmu Kolkhoz in Grodnenskiy Rayon obtained an average yield of 40.6 quintals from a pea-barley mixture grown on 400 hectares and for pea-oats -- 48.3 quintals from an area of 50 hectares. In 1986, as a result of extreme meteorological conditions, the effectiveness of companion sowings of grain crops with pulse crops was less.

The method employed for interplantings of grain crops with pulse crops has been made available to all farms throughout the republic. Its skilful use will aid to a considerable degree in solving the problem of plant protein production for the purpose of enriching concentrated feeds.

Importance is being attached at the present time to making good use of the time remaining before spring sowing. The personnel must be provided with assistance in mastering the progressive technologies for cultivating grain and pulse crop mixtures, for properly adjusting the equipment and for laying in seed and preparing it in the proper manner.

7026  
CSO: 1824/218

## BSSR OBLAST MILK, MEAT PRODUCTION DATA

Minsk SELSKAYA GAZETA in Russian 26 Apr 87 p 2

[Unattributed article: "Oblast and Rayon Indicators for Milk Production, Meat Sales in Belorussian Kolkhozes and Sovkhozes, 1 April 1987"]

[Excerpts] Table I

	Milk production with basic fat content per 100 hectares of agricultural land (quintals)	Percent of esti- mated level	Milk sold to state (%)		Yield per cow		Proportion of quality I milk sold to the state (percent)
			Percent of first quarter plan	Per- cent of 1986	Kilo- grams	Increase in comp. with 1986	
OBLASTS							
Gomel	141.2	114.5	115	112	616	54	87
Minsk	155.6	110.7	119	119	622	76	94
Brest	141.2	107.2	122	122	651	88	92
Grodno	126.6	94.2	118	121	677	81	92
Mogilev	99.6	86.4	115	127	539	84	91
Vitebsk	89.8	78.4	112	114	477	48	89

Table II

	Meat sold per 100 hectares of agricultural land (quintals)	Percent of estimated level	Sold to the state (percent)		Proportion of high quality cattle in overall volume of sales (percent)	
			Percent of quarterly plan	Percent of 1986	High fat cattle	Hogs of I and II cate- gories
OBLASTS						
Grodno	69.0	123.0	105.0	104.0	92.0	62
Brest	56.5	107.8	117.0	113.0	89.0	69
Gomel	45.9	99.0	109.0	107.0	85.0	72
Minsk	49.8	92.9	108.0	107.0	80.0	60
Vitebsk	38.9	92.2	119.0	113.0	77.0	69
Mogilev	34.6	81.3	110.0	116.0	84.0	63

/6091  
CSO: 1824/260

## MACHINE BUILDING OUTPUT FOR LIGHT, FOOD INDUSTRY EXAMINED

Moscow PLANOVYE KHOZYAYSTVO in Russian No 3, Mar 87 pp 20-25

[Article by M. Yegorshev, chief of the Economic Planning Administration of the Ministry of Machine Building for Light and Food Industry and Household Appliances, candidate of economic sciences: "The First Year of Work by the Sector in the New Conditions of Economic Activity"]

[Text] As emphasized in the Political Report of the CPSU Central Committee to the 27th Congress of the Communist Party of the Soviet Union, "Solutions to the new problems in the economy are impossible without profound restructuring of the economic mechanism and development of an integrated, efficient, and flexible system of management that makes it possible to realize the potential of socialism more fully."<sup>1</sup> Work in this direction is going forward vigorously in all elements of the economy. It is timely for Minlegpishchemash [USSR Ministry of Machine Building for Light and Food Industry and Household Appliances] also; the ministry plays a decisive part in technical re-equipping of consumer goods producers. The importance of this work is seen in the fact that for the 12th Five-Year Plan the sector has been given assignments that are 1.5-2 times greater than the rate of development actually attained in the 11th Five-Year Plan. Thus, growth in commodity output should be 42.1 percent (compared to 26.1 percent), labor productivity should rise 42.9 percent (34.4), and the ceiling on expenditures per ruble of commodity output is planned to be reduced by 11.9 percent (compared to 5.5 percent). The volume of production of specialized industrial equipment will rise significantly, by 1.46-1.5 times in the 5 years, as will production of consumer goods. Stimulation funds will increase substantially: 53 percent for the production development fund, 1.5 times for the material incentive fund, and more than 2.5 times for the fund for sociocultural measures and housing construction.

The Ministry of Machine Building for Light and Food Industry and Household Appliances acquired some experience with restructuring management of the sector during preparations for and the process of switching associations and enterprises to the new methods of planning, financing, and economic stimulation of work to build new technology (1979). In conformity with the 12 July 1985 decree of the CPSU Central Committee and USSR Council of Ministers entitled "Broad Dissemination of the New Methods of Economic Activity and Reinforcing Their Impact on Accelerating Scientific-Technical Progress," the sector switched beginning in 1986 to the methods of economic activity that

were tested during the economic experiment on expanding the rights of associations and enterprises in planning and management activity and strengthening accountability for the final results of work.<sup>2</sup>

As the first results indicate, the new methods of economic activity are having a positive effect on raising production efficiency and create economic conditions that stimulate labor collectives to adopt stepped-up plan assignments. Thus, 30 enterprises of the sector (for the first time in recent years) came out with an initiative to increase the 1986 plan for volume of production and labor productivity and reduce the prime cost of output. It should be noted that the reduction in prime cost was facilitated by a more profound analysis of expenditures, including use of the functional-cost analysis method (this work has been going forward actively in the sector since 1980). This method has today been introduced in the working practice of 120 enterprises and 37 organizations. More than 300 articles were subjected to functional cost analysis, which made it possible to reduce the prime cost of output by 29.4 million rubles and labor-intensiveness by 3.4 million norm-hours in the 11th Five-Year Plan. In addition, the decline in output-capital ratio was stopped. It was 137.2 kopecks per ruble of value of fixed industrial production capital in 1985, a figure of 137.5 is expected in 1986, and for 1987 the output-capital ratio is planned at the level of 138 kopecks.

It should be emphasized that the primary advantage from analyzing the results of the sector's work in the new way is that the accelerated production growth rates adopted in the five-year plan are being fulfilled. Thus, the volume of commodity output in 1986 compared to 1985 rose by 6.8 percent and labor productivity was up 8.2 percent while the average annual growth rate of this indicator in the 11th Five-Year Plan was 6.1 percent. In the first 9 months of 1986 expenditures per ruble of commodity output decreased 2.4 percent compared to the same period of 1985 -- and the plan for the whole five years is just 5.5 percent. The new methods of economic activity have had a positive effect on expenditure of the wages fund. In the period January-September 1986 overexpenditure of the wages fund was allowed by 18 enterprises in the sum of 466,000 rubles; during the same period of 1985 the figures were 57 enterprises for the sum of 2.2 million.

Improving the organization of production and labor, especially switching enterprises to two- and three-shift work, will help meet the economic challenges. Carrying out this measure will make it possible to completely liberate about 18 percent of the existing stock of equipment and 7 percent of production areas, to reduce expenditures for repair of existing equipment, and to achieve a savings in capital investment of 20.8 million rubles through the freeing of production areas. According to the sectorial plan the means that are released are being directed to developing social and domestic facilities and to housing construction (a total of about 21.5 million rubles).

Fulfillment of the stepped-up plans of the 12th Five-year Plan should be facilitated in large degree by refinement of the management system. A master plan of sector management has been developed for this purpose and is being successfully implemented. In conformity with it the sector is switching to a two-level management system and where necessary new production and science-production associations are being formed and old ones are being modified,

including in them scientific research institutes and design bureaus with the rights of structural units. This inclusion has been done without impairing the specialized scientific subdivisions and their performance of the role of pilot organization for the assigned types of output.

At the present time production and science-production associations produce about 90 percent of the sector's commodity output. The organizational questions have already been decided in most of them. Plans of association development are being formulated. With the consent of USSR Gosbank establishments, subdivision current accounts and special loan accounts have been opened for production units. All production and structural units have regular accounts and accounts to finance capital investment. But not all the associations and enterprises fit easily into the two-level structure. Therefore, three directly subordinate sectorial main administrations were set up to manage the production units that did not fit into production and science-production associations; the administrations are for the production of equipment for light industry, equipment for food industry, and cultural-domestic and household goods.

A great deal of attention at Minlegpishchemash is being given to improving economic (above all planning) work: raising its level and introducing methods based on modeling the processes of working out sectorial plans; reducing the number of indicators delivered to enterprises, plus the number of reporting forms; developing cost accounting, and improving price formation. A comprehensive system of optimization models of annual and future planning began to be developed in 1986 for the purpose of improving the substantiation of annual, five-year, and long term plans and analyzing the influence of structural changes on the final results of the activity of production units. They make it possible to carry out multivariate calculations of drafts of production plans, conduct an analysis of associations' and enterprises' production-economic activity and evaluate (summarize) the results of plan fulfillment

Some work is being done in the sector to reduce the number of indicators and reporting forms. Thus, internal circulation has been excluded from sectorial production plans. This reduced the imposition of repeated calculations and volume indicators and broadened the independence of the production units. But the main focus was on reducing operational reporting and information requested from enterprises (often in violation of their rights!). Following agreement with the USSR Central Statistical Administration the number of indicators in operational reporting in 1985 was reduced by 7,200 (from 21,100 to 13,900), and in 1986 another 1,500 will be eliminated.

In 1988 Minlegpishchemash will switch to work under conditions of full cost accounting. To determine the methodology more precisely and acquire experience in defining economic norms, the Atlant, Straume, and Klimovsktekash production associations were switched to these conditions as of 1 January 1987. The transition to full cost accounting (including self-financing) will demand that sector, association, and enterprise managers and specialists change their way of economic thinking and their forms and methods of work, because under self-financing conditions the development of the

enterprise's production and social base is determined exclusively by the efficiency of the labor collective's activity.

Other aspects of the development of cost accounting (in the brigade, shop, and association as a whole) also demand solution, especially the questions of price formation. Each year Minlegpishchemash ratifies an average of 800 prices for new industrial equipment, and 9,800 for spare parts to industrial equipment and household appliances. To promote accelerated development and introduction of new technology into production, therefore, the ministry turned over to the enterprises and associations the right to coordinate and ratify wholesale prices on output manufactured under unitary orders and on experimental models and batches of articles. The USSR State Committee on Prices has authorized two enterprises of the sector (the Kapsukas Automatic Food Equipment Association and the Leningrad Printing Machinery Plant) to sell output at contract prices.

To increase the work efficiency of scientific personnel, designers, and production engineers and to reduce the time needed to build new equipment in the sector work has been done to switch these people to the new wage conditions. As a result 11.3 percent of the total number of personnel and 8.9 percent of the wages fund of the scientific research institutes and design bureaus have been freed (25 percent of this sum has been directed to raising salaries, while the remainder is being used to establish pay supplements for performance of the most important and responsible projects and to form a reserve for further increasing the wages of the most skilled specialists).

In the period since the congress work in the sector to improve the quality of industrial equipment and household appliances produced has been considerably stepped up. The rate of renewal of output has doubled. By 1990 the renewal rate will reach 12 percent. The challenge has been posed of significantly increasing the proportion of output whose use qualities match or surpass the world level. At the present time just over 20 percent of our output fits this definition. In 1987 it is planned to raise this figure for the most important articles to 30 percent. In this connection the 1987 assignment for incorporation of new output has been increased by 1.5 times over 1986, while the assignment for modernizing equipment is to increase 1.7 times, and the assignment for removing obsolete machinery from production will be up 1.3 times.

Unfortunately, customers still have significant complaints about the quality of refrigerators and freezers, washing and sewing machines, and other household appliances produced by enterprises of Minlegpishchemash. Thus, in 1986 claims were made against 0.9 percent of the total volume of refrigerators produced and more than 5 percent were subjected to guaranteed repair; the corresponding figures for washing machines were 1.3 and 3.5 percent, for sewing machines 0.12 and 5.3 percent, and for electric shavers 0.19 and 2.8 percent.

The sector's design and production collectives are making great efforts to change the situation. For example, in 1987 it is planned to complete work on switching enterprises to producing refrigerators and freezers in a parametric series. The energy consumption of these units is 30 percent lower than those

presently in production. Their reliability and guaranteed service life will increase. In 1987 1.4 times as many double-chamber refrigerators will be produced as in 1986, and in 1990 they will account for about half of the total volume of refrigerators produced. In washing machine production a policy has been adopted of expanding the production of automatic and semiautomatic machines. In addition to the specialized plants in Kirov and Kishinev, by 1987 these machines will begin to be produced at similar enterprises in Sverdlovsk and Alma-Ata.

State Output Acceptance, which is being introduced for a significant share of the enterprises of the sector as of 1 January 1987, is expected to play a large role in improving quality. State Acceptance organs at the enterprises are almost fully staffed. During preparation for this step, enterprises submitted 74 percent of the established volume of output in December 1986; 72 percent was accepted on the first submission.

But the first results of work in the new conditions also revealed certain negative phenomena. The inadequate supply of monitoring instruments and tools has a negative effect on the activity of the enterprises. According to calculations by our experts, we are short 592 optical instruments and about 30,000 measuring units.

And a large number of production associations still have not restructured their work in the new way. It should be admitted that the organizational and economic setting up of associations still has not been completed in the sector. Some of the associations are really just groups of production units. As a result Minlegpishchemash still has a relatively large number of production associations and enterprises that are not fulfilling their plan assignments, in some cases because of the lack of economic coordination of the structural subdivisions (former enterprises) of the associations.

The expansion of foreign economic links will help the sector fulfill the plans of the 12th Five-Year Plan and raise the quality of output. The growth rate of deliveries of export output will be 136-140 percent in the 5 years. The volume of deliveries of export output for hard currency will increase 2.5-2.9 times. At the same time the development of scientific-technical and economic links by partners from the CEMA countries is directed both to joint development of new, highly productive equipment and to reducing the import of specialized equipment from the capitalist countries.

The experience of the machine building sectors and enterprises switched to the new methods of economic activity earlier and the work practices of Minlegpishchemash enterprises have revealed a number of unresolved questions and problems in further refining economic methods of management. For example, the existing procedures for paying for output are literally deadly for the economies of enterprises that produce working machines which are designed only for a specific customer and cannot be redistributed (because of their highly specific use qualities: weaving machines, lines to pour out liquid foods, macaroni and margarine production lines, equipment for canning and sugar plants, and so on). Such enterprises often find themselves in financial difficulties because the customer is insolvent.

For example, in the period between 1 January and 1 December 1986 the total overdue debt owed to enterprises of Minlegpishchemash almost doubled; it was more than 25 percent of the average monthly level of planned sales volume. This indebtedness shows a tendency to continued growth. It seems fair to us to reproach the USSR Ministry of Light Industry and USSR Agroprom here. Almost every year they fail to ensure that their plans coordinate the cost of the equipment planned for delivery with the allocated capital investment and appropriations to pay for it by subordinate associations and enterprises. The long-standing and improper practice of "wangling" credit from USSR Gosbank and USSR Stroybank for enterprises of these sectors to pay for equipment delivered to them under contract and agreed-upon specifications shows that the republic ministries of light industry and committees of USSR Agroprom are not exercising proper control over their subordinate associations and enterprises in concluding contracts for equipment delivery within the limits of the capital investment allocated to them. In other words, it is time for them to learn to live within their means. It is time to stop ordering machinery and equipment without regard for the real financial condition of the customer.

And possibly only as an exception can it be permitted that accounts for machinery and equipment delivered in conformity with contracts and accepted by the customer are paid for through bank credit in cases of the customer's financial difficulties, including exhaustion of annual appropriations under the plan for financing capital investment. It is entirely natural here that an extra charge should be made for the use of credit, for example in the amount of the penalty for failure to pay suppliers' account on time. And expenditures to pay the interest on such credit should be taken out of the material incentive fund. This step seems economically expedient and essentially fair. One wonders why a plant that has manufactured and delivered output of the appropriate quality at the contracted time should suffer economic losses because it turns out to be dealing with an insolvent customer.

Beginning in 1987 industry switched to evaluating plan fulfillment by output sold with consideration of fulfillment of 100 percent of delivery obligations. As already noted, the specifically designated character of the production and delivery of equipment produced by enterprises of Minlegpishchemash precludes the possibility of redistribution, either by enterprise initiative or by order. This circumstance puts certain enterprises of the ministry in difficult conditions for reasons which were discussed above, that is, depending on how relations with customers take shape. In fact, to this day the customer-enterprises have the right, given to them by the special delivery conditions, to reject output ordered by them and covered by a contract, up to 45 days before the start of a quarter. Such rejections occur more frequently where the level of satisfaction of the need for the particular equipment is higher. But it is apparent that the need for the particular type of equipment should be identified before the order is made up, not after. Rejections are rising at the present time, and this disrupts production. What kind of planned development can there be in such cases?

For example, in November 1985 important officials of the USSR Ministry of Light Industry insisted on increasing deliveries of ChMM-14 cotton-combing machines for enterprises of their sector in 1986 to 1,150 units, despite the objection of the management of the Ivanovo Ivchesmash Plant (now an

association). The rejection of 600 machines had already been received by February. As a result the enterprise, which is highly specialized in the production of these machines, found itself in a difficult position. The 1986 plan for volume of production of output was only 88 percent fulfilled and prime cost rose from 75 kopecks per ruble of commodity output to 77.7 kopecks.

It seems to us that the time has come for a radical change in economic and administration relations between the manufacturers and users of output. And this should find expression in strict material accountability of the customer for refusing output, in other words, in full compensation of the manufacturer's losses. This will help strengthen planning and promote the reflection of real production needs in plans. The system of placing orders for highly specialized working machines especially needs substantial modification. Such equipment should be ordered for a minimum of 2-3 years with the customer given the right to make specific adjustments in the order for the year being planned until March 1. Extending the period of the order will enable manufacturing enterprises to carry out technical preparation for production more carefully and will give the customer enterprises the opportunity to switch to long-range planning of work on technical re-equipping of enterprises.

#### FOOTNOTES

1. "Materialy XXVII syezda Kommunisticheskoy partii Sovetskogo Soyuza [Materials of the 27th Congress of the Communist Party of the Soviet Union], Moscow, Politizdat, 1986, p 33.

2. Preparation for this began in the sector in 1984. An order was issued for the ministry and a study was made of employees of the central apparatus and the production associations (enterprises) and organizations. In addition, the necessary methodological and normative documents and corresponding illustrative material were worked out. Various pamphlets (for the worker, brigade leader, engineering-technical personnel, and shop head) were issued which explained in understandable language what the worker, bridge, and shop collective would receive as a result of raising work efficiency.

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CSO: 1827/55

## IMPROVED CREDIT MECHANISM FOR HOUSING COOPERATIVES NEEDED

Moscow FINANSY SSSR in Russian No 1, Jan 87 pp 52-55

[Article by S. A. Chernetsov, senior scientific associate at the Scientific Research Financial Institute, candidate of economic sciences: "Financial and Credit Mechanism of Development of Cooperative Housing Construction"]

[Text] The political report of the CPSU Central Committee to the 27th Party Congress noted that the social significance and acuteness of the housing problem also predetermine the seriousness of the attitude toward it. To provide every family with a separate apartment or a house by the year 2000 is a vast, but feasible, task.

In accordance with Basic Directions it is envisaged to expand significantly the scale of housing construction before the year 2000. It is planned to commission no less than 2 billion square meters. During the 12th Five-Year Plan it will be necessary to build dwellings with a total space of 595 million square meters including, according to the 1986 plan, 126.6 million and to improve the housing conditions of approximately 10 million people. This requires vast financial and material resources and stepped-up and purposeful work on utilizing them. In the USSR state the basic source of meeting the population's housing needs in cities and workers' settlements lies in state construction. However, along with ever-increasing state and individual construction, cooperative construction is also carried out.

The USSR All-Union Bank for the Financing of Capital Investments issued 3.4 billion rubles of state credit and citizens spent 1.98 billion rubles of their own money for the construction of cooperative dwelling houses. A total of 2.2 billion rubles were received for the liquidation of credit received from the bank. However, the proportion of cooperative housing construction in the total space commissioned in the country is still not big, averaging 5.9 percent.

During the 12th Five-Year Plan capital investments in cooperative housing construction are to be increased to 13.3 billion rubles and the plan for commissioning the total space, 1.8-fold, which will amount to 59.2 million square meters (as compared to 7.2 billion rubles and 32.8 million square meters during the 11th Five-Year Plan). The commissioning of cooperative

living space in rural localities will reach 4.7 million square meters, that is, will increase 2.7-fold. The proportion of commissioned cooperative space of dwelling houses will reach 10.2 percent during the 12th Five-Year Plan, as compared to 5.9 percent during the 11th Five-Year Plan.

Meanwhile, in our country many workers wish to improve their housing conditions through participation in the construction of cooperative houses. Owing to restrictions during the registration for receiving a cooperative apartment (in many of the country's cities they approximate the conditions for receiving state space and in a number of cities the acceptance of applications from citizens has been stopped altogether), the number of people waiting to receive cooperative space is growing in the country year after year. The housing problem remains one of the most complex and acute in the social sphere. To provide virtually every family with a separate apartment or an individual house by the year 2000 is a task of special political and social significance. An important step will have to be made during the 12th Five-Year Plan.

The rates of solution of the housing problem largely depend on what share of the public resources is assigned for these purposes. The rates of growth of capital investments in housing construction throughout the last five-year plans lagged behind the rates of growth of capital investments in the national economy. As a result, the share of capital investments in housing construction, according to the data of the USSR Central Statistical Administration, was reduced somewhat, comprising 17.7 percent during the 8th Five-Year Plan, 15.8 percent during the 9th Five-Year Plan, 14.2 percent during the 10th Five-Year Plan, and 15.1 percent during the 11th Five-Year Plan.

An increase in the total volume of resources allocated by society for the solution of the housing problem will make it possible, not violating social justice, to increase the proportion of cooperative construction to 12 percent in the total volume of housing construction and to ensure the commissioning of cooperative space in the volume of 71 million square meters. Increasing the proportion of housing construction cooperatives to 12 percent in the total volume of space commissioned in the country will make it possible to save 2.6 billion rubles of budget funds, to balance the population's monetary income and expenditure to a certain degree, and basically to eliminate the line for joining housing construction cooperatives.

In our opinion, a fuller utilization of existing opportunities for the construction of cooperative dwelling houses is an important potential for increasing the commissioning of dwelling houses of housing construction cooperatives. As the data for the 11th Five-Year Plan show, these opportunities are by no means utilized fully. Cooperative housing construction plans were not fulfilled annually. As a result, the program for the construction of cooperative dwelling houses was not fulfilled during the 11th Five-Year Plan. With a plan for commissioning a total space of 38,310,000 square meters only 32,783,000 square meters, or 85.6 percent of the five-year plan, were commissioned. This means that during the five-year plan more than 92,000 families did not receive apartments in well-planned dwelling houses. Annual programs of the 11th Five-Year Plan were fulfilled in an

especially unsatisfactory manner in the Turkmen SSR, 41 percent; the Kazakh SSR, 78 percent; the Kirghiz SSR, 79 percent; the Tajik SSR, 78 percent; the Armenian SSR, 79 percent. On the whole, not a single republic coped with the plan for commissioning the total space in houses of housing construction cooperatives. Throughout USSR ministries and departments the plan for commissioning the total space in housing construction cooperatives was fulfilled 78 percent. One of the reasons for the low fulfillment of plans for building housing construction cooperatives lies in the weak interest on the part of contract construction organizations in building houses for housing construction cooperatives owing to the existing system of awarding bonuses to and providing builders with living space.

The basic volume of cooperative housing construction (68 percent) is carried out by contract organizations of the USSR Ministry of Construction of Heavy Industry Enterprises, the USSR Ministry of Industrial Construction, and the USSR Ministry of Construction, which, on the average, fulfill the plan for this construction 87 percent and, as a rule, the fulfillment of the plan for commissioning the total space with state capital investments is much higher than for houses of housing construction cooperatives. For example, according to the state capital investment plan, the plan for commissioning projects for residential housing purposes was fulfilled, on the basis of the data of the USSR Central Statistical Administration, in contract construction organizations of the USSR Ministry of Industrial Construction 104.2 percent in 1984 and 101 percent in 1985; with the funds of housing construction cooperatives, 90.2 and 90 percent respectively; in the USSR Ministry of Construction during the same years with state capital investments funds, 101.4 and 92 percent and with the funds of housing construction cooperatives, 89.7 and 80 percent; in the USSR Ministry of Power and Electrification, 96.9 and 95 percent; 79.6 and 61 percent respectively.

As a rule, cooperative dwelling houses are commissioned during the last months of a quarter or a year. Irregular commissioning is inherent in the plan. For example, it was envisaged fulfilling 14.2 percent of the annual plan for commissioning the total space during the first quarter of 1981 and 32.5 percent, during the fourth quarter; in 1982--13 and 34.4 percent respectively; in 1983--10.9 and 38.6 percent; in 1984--10.4 and 38.1 percent; in 1985--14.7 and 36.7 percent. The planned periods of cooperative dwelling house construction exceed the established construction length norms and their commissioning is often postponed. With an average standard construction length of 8 to 12 months the construction of cooperative dwelling houses often drags out for 2 or 3 years and longer.

For the purpose of increasing the responsibility of contract construction organizations in fulfilling plans for building houses for cooperatives and further developing housing construction cooperatives, an obligatory coordination by the client of the volumes of construction and installation work with the contractor for houses of housing construction cooperatives included in the plan seems necessary. To increase the responsibility of contract construction organizations for the completion of cooperative dwelling houses during planned periods, it is necessary to establish a procedure, according to which enterprises, institutions, organizations, and executive committees of local soviets transfer, in accordance with the established

procedure, to contract construction organizations 10 percent of the commissioned living space in dwelling houses built with state capital investments only if they fulfill the established quarterly plans for commissioning cooperative dwelling houses. Furthermore, it is necessary to make changes in the existing procedure of awarding bonuses for commissioning the total space, which would contribute to the fulfillment by contract organizations of the established plans for the construction of cooperative dwelling houses. When a contract organization does not fulfill the plan for commissioning the total space in cooperative dwelling houses, a bonus should not be paid even if the quarterly plan for commissioning the total space is fulfilled as a whole.

The proposed measures should increase the responsibility of contract construction organizations for fulfilling plans for the construction of dwelling houses for cooperatives. Nonfulfillment of assignments for commissioning houses of housing construction cooperatives will be considered a disruption in the state plan with all the ensuing consequences, including deprivation of bonuses and other incentives.

Improving the planning of cooperative housing construction is an important potential for realizing its plans. Dwelling houses, for whose construction there are no planning estimates, as well as houses not provided with financing sources owing to the lack of formed housing construction cooperatives, are still included in the plan. According to the data as of 1 April 1986, financing with an annual capital investment limit of 413.7 million rubles has not been formulated for 956 houses included in the plan; among them 194 houses, owing to the lack of planning estimates and 288 houses, because housing construction cooperatives have not been established.

The unsatisfactory fulfillment of cooperative housing construction plans is connected to a significant degree with the nonfulfillment of long-term credit plans and incomplete credit utilization. Credit amounting to 3.3 billion rubles, or 77.2 percent of the plan, was issued to housing construction cooperatives during the 11th Five-Year Plan. For example, in the RSFSR about 22 percent of the bank credit for cooperative housing construction has been underutilized. Along with the nonfulfillment of established plans for the construction of cooperative dwelling houses, the untimely formulation of financing, failure to meet commissioning dates, and delay in the settlements of accounts in construction for commissioned houses have affected the unsatisfactory credit utilization.

In the Russian Federation in 1985, just owing to failures to meet commissioning dates (149 houses were not commissioned), the amount of unutilized credit totaled 51.2 million rubles and, owing to the delivery of houses with imperfections (five), 10 million rubles. The financing of 82 dwelling houses, or 5.7 percent of the total number of houses (1,429) included in the plan, was not formulated before the end of the year; partly owing to the lack of planning estimates, 28 houses, of housing construction cooperatives, 29 houses, and of shareholders' funds, 22 houses, in connection with which credit worth 6.3 million rubles was not utilized. In 1985 credit was utilized in an especially unsatisfactory manner by USSR ministries and departments--46 percent; out of the Union republics, by the Turkmen SSR, 50

percent; the Kirghiz SSR, 58 percent; the Azerbaijan SSR, 66 percent; the Kazakh SSR, 68 percent. During the 11th Five-Year Plan 2.2 billion rubles were received for the liquidation of credit received by housing construction cooperatives.

The situation is intolerable: Ministries, departments, local party, Soviet, and trade-union bodies, and economic managers do not pay proper attention to the development of the social infrastructure, have become accustomed to a systematic nonfulfillment of housing construction plans, and do not exercise strict control over the prompt and smooth commissioning of housing and projects for social and cultural purposes. The CPSU Central Committee has made it incumbent upon USSR ministries and departments and councils of ministers of Union and autonomous republics to develop and implement specific measures for solving the housing problem in every sector, republic, kray, oblast, city, rayon, and enterprise for the purpose of exceeding housing construction volumes envisaged for the 12th Five-Year Plan and more fully utilizing all the sources of funds, potentials, and opportunities for an unconditional fulfillment of the task of providing every family with a separate apartment or a house by the year 2000.

The rights of enterprises in spending the capital of incentive funds on providing assistance to workers and employees joining housing construction cooperatives engaged in individual construction have been extended noticeably in recent years. However, although during 4 years of the past five-year plan such assistance increased approximately threefold, in 1984 the total expenditures on these purposes throughout the national economy were 13.7 million rubles, or 0.3 percent, and in industry, 0.2 percent of the fund's total amount. In 1983-1985, according to the data of the USSR All-Union Bank for the Financing of Capital Investments, only 1,523 enterprises on the territory of 11 Union republics assigned from economic incentive funds for the construction of 1,146 cooperative dwelling houses (which comprises 10.8 percent of the houses of housing construction cooperatives included in the plan) 5.1 million rubles, or 0.52 percent of the estimated cost of houses built with the utilization of the capital of an enterprise's fund for social and cultural measures and housing construction.

These and other shortcomings are reflected in the full utilization of the fund's capital and increase in its balance. In 4 years in the USSR Ministry of Ferrous Metallurgy the balance increased 3.7-fold, in the USSR Ministry of Machine Building for Light and Food Industry and Household Appliances and the USSR Ministry of Light Industry, 3.6-fold, in the Ministry of Chemical and Petroleum Machine Building and the Ministry of Construction, Road, and Municipal Machine Building, 3.3-fold, in the Ministry of the Petroleum Industry, 3.2-fold, and so forth. Throughout the national economy at the end of 1984 it totaled 6,182.4 million rubles, which exceeded the annual deductions into that fund. With the balance of the capital of the fund for social and cultural measures and housing construction alone it would be possible to build additionally approximately 570,000 apartments. To solve the housing problem, it is necessary to search for additional resources, in particular, with incentive funds of enterprises to provide assistance to advanced workers and young people in the construction of individual houses and when they join housing construction cooperatives.

For the purpose of further improving the housing and cultural-general conditions of young people, the suggestion by the AUCCTU and the Central Committee of the Komsomol on the construction of cooperative dwelling houses for young people was adopted. USSR ministries and departments and councils of ministers of Union republics must envisage the construction of such projects in draft plans. Housing construction cooperatives for young people are organized under executive committees of local soviets at the suggestions of rayon Komsomol committees and under enterprises, institutions, and organizations, at the suggestion of labor collectives and Komsomol and trade-union organizations of these enterprises. Individuals under the age of 30 can be accepted as members of housing construction cooperatives for young people.

The construction of houses of housing construction cooperatives for young people should be financed in accordance with the procedure established for dwelling houses, whose construction is carried out according to the state capital investment plan. Credit for housing construction cooperatives for young people will be granted provided the cooperative pays its own money at the rate of no less than 30 percent of the estimated cost of house construction before the beginning of construction and for housing construction cooperatives for young people building dwelling houses in cities and urban-type settlements located in the Kazakh SSR, Siberia, the Far East, the regions of the Far North, and localities equated with the regions of the Far North, as well as in miners' settlements, no less than 20 percent.

Institutions of the USSR Bank for the Financing of Capital Investments granted housing construction cooperatives credit for the construction of dwelling houses at the rate of up to 70 percent of the estimated cost of house construction, and in the above-enumerated regions and miners' settlements, up to 80 percent. Bank credit is liquidated by housing construction cooperatives annually in quarterly payments in equal shares for 25 years. For the use of bank credit, the housing construction cooperatives for young people pay an annual interest rate of 0.5 percent and an annual interest of 3 percent is charged on overdue payments. The interest charged for the period from the day of the first issue of a loan to the beginning of credit liquidation is paid simultaneously with the first loan payment and for the subsequent time, with regular payments.

Our state grants big privileges to housing construction cooperatives: Material and labor resources are allocated (the contract method of construction), the cost of construction of dwelling houses is determined at wholesale prices (like the cost of dwelling houses built according to the state capital investment plan), long-term state credit (up to 70 or 80 percent of the cost with a pay-off period of up to 25 years) with a charge of an annual interest of 0.5 percent is granted, and expenditures on the preparation of the building territory and the construction of municipal utility lines are put down to executive committees of local soviets.

Substantial financial privileges are granted to young people wishing to join housing construction cooperatives. The manager of an enterprise, an institution, or an organization in coordination with trade-union organizations can give them financial assistance free of charge, using the capital of

economic incentive funds, for the initial payment. Such assistance is granted to workers, who have worked at a given enterprise (institution or organization) for no less than 5 years, at the rate of up to 30 percent and to newlyweds, who have worked no less than 2 years, at the rate of up to 40 percent of the initial payment of a cooperative's own money subject to payment before the beginning of construction of a cooperative dwelling house in the regions of Siberia, the Far East, and the Far North, in regions equated with them, and in rural areas of the RSFSR nonchernozem zone, and up to 15 and 20 percent respectively, in other regions.

With the capital of the material incentive fund, the fund for social and cultural measures and housing construction, and other funds intended for the indicated purposes it is permitted to liquidate the remaining debts on bank credit for workers--members of housing construction cooperatives for young people--who have worked at an enterprise, an institution, or an organization for no less than 5 years, and for newlyweds, who have worked no less than 2 years, annually at the rate of up to 50 percent of the amount subject to liquidation during the year in the regions of Siberia, the Far East, and the Far North, in localities equated with the regions of the Far North, and in rural areas of the RSFSR nonchernozem zone; in the country's other regions--during the first 10 years after joining a cooperative, annually at the rate of up to 50 percent and at the expiration of 10 years, at the rate of up to 30 percent of the amount subject to liquidation during the year.

Managers of enterprises, institutions, and organizations are permitted to grant, in accordance with the established procedure upon the recommendation of Komsomol organizations and with the consent of labor collectives, from the capital of material incentive funds, an interest-free loan of up to 1,500 rubles to workers under the age of 30, who have worked at a given enterprise for no less than 5 years and who have joined housing construction cooperatives for young people, for the initial payment of their own money for the construction of a cooperative dwelling house with a pay-off period of up to 10 years. An expansion of the practice of enterprise assistance to workers for joining cooperatives would make it possible to increase the fund's role in solving the housing and amenities problem and in retaining personnel at enterprises.

As it seems to us, the problem of developing cooperative construction should be examined with due regard for the following: general conditions for solving the housing problem in the country, which are determined by the material, labor, and financial resources that society can assign for housing construction and by the way these resources are distributed according to financing sources--for state, cooperative, individual, and kolkhoz construction; improvement in the planning of cooperative housing construction; increase in the interest of contract organizations in this construction; development of new organizational forms of housing cooperatives; and expansion of financial opportunities for joining housing construction cooperatives.

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## ROLE OF BUYERS AT GAS ENTERPRISES TO BE RAISED

Moscow GAZOVAYA PROMYSHLENNOST in Russian No 3, 1987 pp 9-13

[Article by V. D. Batozskiy, chief of the Administration for Planning and Research Work: "The Functions of the Client--On the Level of Modern Requirements"]

[Text] The changeover of organizations of the Ministry of the Gas Industry to the new methods of management required an altogether new approach on the part of clients to questions of planning facilities of the gas industry and determining the estimated cost of construction.

Since 1 January 1987 the basis for agreeing on the contract has been the contractual price, that is, the estimated cost, which is determined in the stage of TEO [Technical and Economic Substantiation] (TER [Technical and Economic Development]) or the plan, and is coordinated with the contractor for all the newly started construction sites. The correctness of the determination of the estimated cost of the projects is the special responsibility of the clients (and, of course, the institutes). And the indicators of the TEO (TER) should reflect the level the organization or enterprise will reach in terms of the production cost of products during the period of the construction.

Unfortunately, the clients are constantly violating this policy. The assignments for planning are issued in a disorderly way, without proper development in the TEO (TER). As a result, after the development of the TER the technical and economic indicators of the construction project change, which entails a reworking of the assignments for planning, the title lists of the planning and research work, and the title lists of the construction projects, and it also makes it more difficult to finance planning and construction-installation work. As a result, the cost determined in this stage, a rule, is 15-20 percent higher than the estimated cost of the plan.

As a rule, the technical and economic indicators for the substantiation, which precede the development of the plans, are neither analyzed nor considered by the clients and no conclusions are drawn on the basis of these. During past years the ministry has not received a single proposal for reducing the estimated cost of the plans from the associations and enterprises.

There are frequent cases in which after the plan is submitted the client submits additional assignments for planning that require large expenditures, and this increases the cost of the facilities.

According to the approved plan for Yamburg-125, 429.3 million rubles were to have been allotted for the construction of the industrial base, including 381 million rubles for construction and installation work. As a result of an analysis conducted on the spot a proposal was developed for reducing these expenditures by 130 million rubles. This decision was not adopted and the funds were not assimilated, but the client--Yamburggazdovycha--sent the institute additional assignments for including in the construction project expenditures amounting to 186.7 million rubles.

One can give many examples from the Astrakhan complex in which, without taking into account expenditures on the construction of the facilities of the infrastructure, for the construction of Section I the client and builders require new facilities for constructing Section II.

For the gas line from Yamburg to the western border of the USSR alone, even after the plan was submitted, on the initiative of the client (the production associations) the management of the ministry signed more than 30 editions to the assignment for planning, amounting to a sum of about 700 million rubles.

The assignment for planning the main gas line from Yamburg to the western border of the USSR and from the SRTO to Surgut to Omsk on the insistence of the clients, must include a sanitary and preventive medical facility, to general trade bases of the workers supply division, a mechanized complex for dispatching potatoes, a base for procuring timber, the Tyumen base of the PTOiK [expansion unknown], and an automated system for controlling the technical process of the Urengoy-Chelyabinsk gas line.

When speaking about reducing expenditures, especially on Yamburg, and in the near future also for deposits of the Yamal Peninsula, it has long been necessary to deal with the problem of having the Gosplan estimate the cost of the manufacture of block-boxes and block-pontoons in terms of the cost of machine-building products. For it is no secret that it is mainly because of this reason that the cost of the installations for comprehensive processing of gas is increasing, even in comparison with those at Urengoy, and in addition to this there are expenditures related to the manufacture of pontoons.

The residual estimated cost of construction projects carried over until 1986 is about 25 billion rubles after the cost of their construction was reduced by 4.5 billion rubles as a result of the revision of more than 200 plans. For the majority of these construction projects the normative time periods for construction have already expired. Because of this the clients were long ago instructed to prepared proposals for revising the estimated cost of construction projects in order to reduce them sharply, but up to this time no concrete suggestions have been sent either to the institutes or to the economic planning and construction administration of the Ministry of the Gas Industry.

Now about another important constituent of the cost of facilities--the transportation plan for delivering cargoes that affect cost indicators.

The transportation plan is drawn up in the stages of the TER or the plan when the cargoes are delivered to a place that has neither highways nor railroads, that is, without sufficient transportation communications. But when the roads and ports have been constructed, no proposals are submitted for changing the transportation plan. One gets the impression that this suits the clients quite nicely. For simplifying the transportation plan sharply reduces the cost indicators of the facilities, especially under the conditions of Western Siberia.

Up to this point the clients have made no suggestions to simplify the technological systems for preparing and transporting gas, reducing the number of service personnel or changing over to technology that does not involve humans.

In order to increase the role and responsibility of client organizations for the qualitative level and promptness of the submission of planning estimates and their utilization in construction, a provision has been introduced according to which expenditures on the development of planning estimates not using construction during the planning period are returned to the state budget, and the officials to blame for this are held materially liable.

According to data of an inventory conducted in 1985, the "wasted" expenditures on planning work now amount to 7 million rubles.

What measures are we taking to make sure that the institutes determine the optimal cost of the construction of facilities? Beginning in 1986 we made bonuses for institutes directly dependent on their fulfillment of assignments for improving the quality of plans. To do this each institute has been given annual assignments for reducing the cost of construction and construction-installation work, economizing on the basic construction materials, and providing for effectiveness of the introduction of new technical equipment.

In order to determine the quality of individual plans and TEO's (TER's) the VNIEgazprom has developed base indicators for plans and methods of determining the quality of plans. If in the plan the base indicators have been exceeded, this plan is not considered but is returned for further work.

Since 1987 the planning of a number of facilities has been done on a competitive basis, which will also contribute to improving the technical and economic indicators of the plans.

Many years of practice have shown that it is necessary to simplify the general policy for coordinating construction projects and the lists of plans.

The rights of the general planners to materially influence the subcontracting planning organizations have been limited. To be sure, now it has become possible to reduce bonuses for the introduction of facilities. But there are practically no sanctions in the rules concerning agreements for planning and

research work which were approved as early as 1959. We have long been waiting for the USSR Gosstroy and the USSR Gosplan to issue new rules concerning agreements.

It will also be difficult to force the subcontractors to participate in establishing the contractual prices for facilities under construction. Unfortunately, we have bitter experience in cooperating with subcontracting planning organizations when recalculating the estimate into 1984 prices. Now all this is being repeated. The subcontractor requires additional limits in order to compile the prices and the payment for this work. The USSR Gosplan and the USSR Gosstroy do not influence the subcontractors in any way in order to make sure that this work is within the established limits or to establish the cost and sources of payment for the determination of prices.

Graph plotters, aerial photography and modern research equipment are being introduced more and more extensively into the practice of planning. This is costly equipment and there is no compensation for expenditures on it in existing calculations for planning and research work. These must be revised.

Only on the basis of close creative interaction between clients and planners is it possible to sharply improve planning estimate work, improve the quality of plans and reduce their cost.

We consider it superfluous, for example, for the construction planning department to plan the volume of gross or commercial output in value terms (for example, for Urengoygazdobycha), the influx of gas into the gas lines or the pipeline administration, or the number of personnel in the various categories for all cost accounting [khozraschet] subdivisions.

At the same time, in a number of cases there are no indicators that characterize the quality of products (Norilskgazprom, Shatlykgazdobycha) and measures for technical progress and new technical equipment are not introduced. In associations for transportation and delivery of gas, the planned indicator ("number of measures for the introduction of scientific organization of labor and new technical equipment" does not reflect the effectiveness of the introduction of new technical equipment and technology and equalizes all achievements of technical progress. Another economic indicator that is very important in our view is not reflected: the cost-accounting result, which stands in contradiction to the principles of cost accounting.

Thus basically all enterprises for gas extraction and main pipeline transportation of gas plan the activity of shops and subdivisions. But the system of indicators needs to be revised and it is necessary to arrange for high-quality planning of the work of auxiliary production and all brigades.

Bonuses and material incentives: in the organization of intraproduction relations at the enterprise, an important role is played by the system of bonuses and material incentives.

The bonuses for workers, engineering and technical personnel, and employees at all enterprises for extracting gas are made in keeping with annually revised provisions. When developing these under the conditions of intraproduction cost accounting it is necessary to be guided by the requirements for coordinating the indicators of bonuses for all categories of workers in the subdivisions with the system of established planning and evaluation indicators.

Workers in basic and auxiliary production are awarded bonuses from the wage fund (the main source), the material incentive fund, and also the fund from economizing on specific kinds of material and fuel-energy resources. Consequently, the system of bonuses too (indicators and conditions) should be developed on the basis of these sources.

At individual enterprises when determining bonuses taking into account the coefficient of labor participation there are difficulties related to the lack of methodological developments for its application.

The calculation and distribution of bonuses for economizing on material and fuel-energy resources, in the majority of cases, are done without taking into account the specific subdivisions, sections and production objects where this savings are achieved. This is explained by the poor quality of the norms for expenditure of individual kinds of resources and the individual nature of accounting.

At enterprises for main pipeline transportation of gas the provisions concerning bonuses have been revised and brought in line with the planning indicators. They envision bonuses for engineering and technical personnel and employees for fulfilling the plan for commercial gas, performing individual jobs and not exceeding the proportional norms for the expenditure of fuel and energy resources. They envision as indicators for bonuses for brigades fulfilling the normed assignments and not exceeding the limits for fuel and energy resources. Such provisions concerning bonuses complete coordinate the results of the work of cost accounting subdivisions with their incentives. But even this system of bonuses has its shortcomings. Thus one of the sources for bonuses for workers, the material incentive fund, is not included in the planned cost accounting indicators. And deductions into it for the subdivisions are made in proportion to the wage fund, which does not provide incentive for reducing the number of workers.

In many associations the system of indicators for bonuses is not coordinated with the planning and evaluation indicators; this reduces the effectiveness of intraproduction cost accounting. In order for cost accounting not to be superficial, it is necessary to revise the existing system of bonuses at gas extraction and transportation enterprises and to improve this progressive form of labor organization in keeping with the goals and tasks.

Norm setting for the expenditure of material resources: a study of the structure of material expenditures in many gas extraction associations showed that the existing norms for expenditure do not reflect altogether objectively the modern level and needs of the technological process for extracting gas and

condensate. For example, the proportion expenditure of electric energy in the gas fields is set at 1,000 square meters of extracted gas. But this does not take into account the availability of energy-consuming equipment, final compressor stations, head installations and other facilities.

Under the conditions of the declining extraction, expenditure of electric energy is increasing and the energy-intensiveness of the extracted products is increasing. The norm for expenditure of electric energy expressed in kilowatt hours per thousand cubic meters does not reflect the actual amount of expenditure of electric energy when final compressor stations are put into operation.

In a number of associations (Yakutgazprom, Shatlykgazdobycha, Achakgazdobycha) norms are developed according to the actual expenditure of resources and not according to special methods. As a result there is an unsubstantiated savings or overexpenditure of resources. In the Norilskgazprom Association each year there is a great overexpenditure of fuel. This is because of the fact that this region has in effect unionwide norms for the expenditure of gasoline and diesel fuel which do not take into account the specific conditions of the location of the enterprise (no roads at all and eternal freezing).

There is now a real need to revise the norms for service and repair of gas pumping equipment, the time norms for repair and preventive maintenance on gas distribution stations, and the norms for the expenditure of materials.

For the basic production services of certain enterprises (Yakutgazprom, Shatlykgazdobycha, Achakgazdobycha and Kubanmorneftegazprom) differentiated norms are needed for the expenditure of resources such as DEG, corrosion inhibitors, methanol, and electric energy for the various seasons of the year and for the various facilities.

Of the subdivisions from auxiliary production in all the gas extraction associations norms are provided only for shops for underground and capital repair of wells.

There are practically no norms in effect for the expenditure of the basic kinds of materials in such auxiliary subdivisions as the machine-repair service, the energy and steam-water supply service, or the service for automation of production. These services do not have norms for the expenditure of individual units of utilized materials either.

An essential shortcoming of the normative base of cost accounting is the lack of methods at gas extraction enterprises for calculating norms for the expenditure of resources on conducting repair of equipment and also operational needs.

In a number of cases, the lack of methods for determining the norms for the expenditure of resources is because of the incomplete developments by branch scientific research and planning institutes and also normative research stations that are included in the associations. The development of these methods would make it possible to essentially simplify the determination of

norms and to automate calculations which would result in increased effectiveness of intrabusiness calculations.

The organization of the accounting for the actual expenditure of all kinds of resources in the various subdivisions and facilities of gas extraction and transportation associations should rely on the utilization of computers and automated control systems.

Organization of intraproduction sanctions: many years of practice in the organization of cost accounting in industry show that the effectiveness of cost accounting of levers and stimuli is decreased when there is no effective system of economic responsibility.

At the present time the problem of evaluating the results of cost accounting activity of economic units is the least well developed. This reduces the objectiveness of the evaluation and makes it more difficult to make a correct selection of forms and methods of economic influence on them when there are deviations from the given parameters for production and economic activity. The solution to this problem is an important condition for increasing the effectiveness of associations and their structural subdivisions in fulfilling contractual commitments.

All the structural subdivisions in the gas extraction and gas transportation subbranches are linked with one another by intraproduction plans and technological discipline, and through cooperation they enter into relations for repair of equipment and supply.

The cost-accounting subdivisions, while they have the right to dispose independently of the funds allotted to them, cannot bear responsibility for additional production expenditures caused by shortcomings in the work of other subdivisions, divisions, shops and services of the production association. The damage should be reimbursed by the subdivision that is responsible. Losses are considered to be direct expenditures and incomes which could be obtained if the commitments had been fulfilled. There are several sources of reimbursement for losses: including the amount of the sanctions in the cost-accounting indicators of the shop; making reimbursement for direct losses from the material incentive fund of the subdivision that is to blame, and so forth. The basis for submitting complaints is a violation of the conditions of internal agreements. Attention should be given to the experience in applying economic measures of influence against violators of economic discipline that has been accumulated in the system of the Ministry of the Petroleum Industry.

According to the stipulated procedure, the adoption of a decision in each specific case is proceeded by verification of the facts of the economic violation done by the members of the cost-accounting commission with the participation of the association's legal division.

Questions of regulating production interrelations among subdivisions of basic and auxiliary production, the policy, the time periods, the documentation of complaints, the methods for determining damage, and the lists of complaints that are made are developed and registered in the provisions concerning material responsibility in the association.

We have established that in petroleum and gas extraction associations, with the exception of Kaspmorneftegazprom, there was no regulated system of interproduction sanctions. The creation of such a system would ensure effectiveness of cost accounting within the enterprise.

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## DEVELOPMENT OF THE CASPIAN OIL, GAS BASIN

## The Present Day and the Past Century

Moscow SOTSIALISTICHESKAYA INDUSTRiya in Russian 11, 12, 13, 14 Mar 87

[Article by V. Kremer and L. Lukyanova (Astrakhan): "Astrakhan Contrasts"; first two paragraphs SOTSIALISTICHESKAYA INDUSTRYA introduction]

[11 Mar 87 pp 1-2]

[Text] Under the current five-year plan assimilation is being started on the underground wealth of the Caspian area, where a large new fuel and raw materials base will be created for the country. The region's favorable geographical position and the significant amounts of petroleum and gas and valuable chemical raw materials that have been discovered there place it in a key position in the implementation of long-range plans for the development of the national economy.

Now, in the initial stage, it is especially important not to allow a repetition of past mistakes and to provide for an intelligent combination of the development of industry and the social sphere, as well as the protection of the unique elements of nature in this area. The way these problems are being solved will be discussed in the materials by SOTSIALISTICHESKAYA INDUSTRYA and TASS, "Petroleum and Gas in the Caspian Area."

### 1. The Present Day and the Last Century

When a landing party of construction workers arrived in the small railroad station of Astrakhan there was a lifeless desert all around. There were neither small trees nor housing for people. Dusty whirlwinds spun over the tops of large sand dunes thinly covered with prickly plants. Thus 5 years ago in the Batpaysagyr sand of the lower reaches of the Volga, construction was started on the largest gas processing plant.

At the end of last year the Astrakhan Gas Complex had already produced its first product--the purest reclaimed sulfur.

The tension of the startup period has not abated even yet. They are working out schedules and adjusting automation systems. Not all of the capacities

have been accepted by the work commission yet and the staffs are not completely filled.... But the schedule has already gone into effect and by July the first section of the complex should reach the planned volumes for the output of sulfur and commercial gas. The foundations of a second section have already crawled up out of the ground and they want to put it into operation a year ahead of schedule. In the institutes they are already checking out the variants of planning decisions for the next section, the third....

"The scale and rates of work in Astrakhan are comparable to such gigantic concern sites as the BAM and KamAz," said the deputy minister of the gas industry, V. Sheremet, when speaking to the all-union mobile detachment of journalists who were passing through here. "The complex embodies the latest achievements in the extraction and processing of natural gas. For the first time, we will remove gasoline and diesel and boiler fuel from the condensate right on the spot...."

In past years such an announcement would probably have met with applause. Now the reaction in the hall was marked by restraint. And not only because we have become accustomed to more serious estimates recently.

It was no mystery to the journalists that the achievements about which the deputy minister spoke were, alas, basically not our achievements but the achievements of foreign designers and engineers, or that the unique equipment capable of opposing the strongly aggressive environment (Astrakhan gas contains 25 percent hydrogen sulfide) was largely developed at plants other than ours. And we had given foreign firms several hundred million rubles' worth of currency for the technical equipment and technology for the Astrakhan complex.

Of course it is necessary to look at things realistically. We are buying in the West that which we are unable to produce or have not yet learned to produce or do not produce as well. Just as the West purchases from us whatever is in short supply there. It is a normal practice and mutually advantageous international trade. But to what extent are these general considerations applicable to the Astrakhan variant?

A number of the vital pieces of equipment for the first section of the gas processing plant was ordered by the French firm "Technique" with whom the contract had been concluded, not anywhere abroad but from our Volgogradneftemash Association of the Ministry of Chemical Machine Building. And the Volgograd workers are successfully filling this prestigious order. The receiving firm has been satisfied with the quality.

So, we can, we are able to make this equipment! But--we purchase it.

What comes to mind is a story from not so long ago concerning the construction of the gas complex in Orenburg where the gas extraction workers first encountered the threatening danger of hydrogen sulfide. The first two sections had been put into operation using imported equipment. But they decided to equip the third and last section completely with domestic equipment. Then instead of this, at the last minute (they were up against the deadline!) they signed a new contract with a foreign firm. And it, reacting sensitively to

the market conditions, demanded "for speedy delivery" almost one-third more than the ordinary price. We paid it because there was nowhere else to turn.

Did this experience serve as a lesson? Judge for yourselves. Three five-year plans have already passed since the beginning of the Orenburg Construction Project. Ten years have passed since the day of the discovery of the Astrakhan deposit. And we still do not have the necessary technical equipment or production base for extracting the gas here or extracting all the useful components from it.

The Ministry of Heavy Machine Building has not produced powerful growing installations to drill wells at a depth of more than 4 kilometers. The USSR Ministry of Ferrous Metallurgy had not prepared for producing highly durable pipes that are resistant to corrosion. The Ministry of Chemical Machine Building has not mastered the output of antidischarge equipment that guarantees safety of work with unusually high pressure in the beds. The Ministry of Instrument Making, Automation Equipment and Control Systems is slow in producing instruments and means of automation that are capable of providing for monitoring the parameters of the process taking place in an aggressive environment.

And, as we know, there is nobody to blame. As usual, the ministry is bombarding the Gosplan with requests for the allotment of large additional sums in convertible currency.

Are we really as helpless as some of our leaders try to depict us?

"I cannot understand at all why we had to purchase abroad a system for monitoring the parameters of drilling," the head engineer of the Astrakhanburgaz Trust, Ye. Belitchenko, shared his doubts with us. "Our Geostat station is not only no worse but is much more reliable and convenient to operate.... Or take the imported blowout preventers. They cost an immense amount of money but in terms of design, I can assure you, there is nothing principally new."

The reorganization forced us to change our point of view and question the old truth that asserts that "there is never anything wrong in one's fatherland."

Recently a decision came down concerning the delivery to the Caspian regions of drilling installations with increased lifting capacity--they are being produced at Uralmash. The Volga Pipe Plant has begun the construction of a large shop for producing casing pipes that are resistant to corrosion and are needed by workers drilling in the depths of the Astrakhan earth. The instrument builders took from the archives the yellowed blueprints, and found out which of the previous discoveries had not yet become outdated and what had to be discovered from the beginning.

The minister of chemical and petroleum machine building, V. Lukyanenko, who visited Astrakhan at the end of last year, firmly promised: the third section of the gas processing plant would be outfitted only with domestic equipment.

But here a serious question arises: What technical decisions lie at the basis

of the plan for the third section? Will this be a new level as compared to the one that already exists, which was ordered from foreign firms for the second section? Or will these be copies of well-known originals?

At the plant we saw immense steel cylinders with silver insulating casings. Raised on metal supports and surrounded by a network of pipelines of various sizes, they impressed one with their similarity to space rockets. "Klaus furnaces"--the engineer accompanying us said respectively. It is here that the mysterious transformation of hydrogen sulfide into pure sulfure takes place.

Klaus.... There are a couple of lines about him in the encyclopedic dictionary: Klaus Karl Karlovich (1796-1864), Russian chemist, corresponding member of the Peterborg Academy of Sciences.... We must give our compatriot his due for the perspicacious idea that has come down to us after a century and a half. But has chemical science really not made any progress since then?

One of the institutes in the capital that is not under the Ministry of the Gas Industry has developed the scientific substantiation for a principally new method of obtaining sulfur. The method, in the opinion of its authors, promises a real revolution in the processing of highly toxic natural gas. We called the Ministry of the Gas Industry and asked the head engineer of Glavgazpererabotka, Z. Mishin, what he thinks of the Moscow scientists' idea.

The answer came immediately and he did not try to conceal his irritation: "A useless, empty fantasy! These experiments will not produce anything. And why? We have the tested Klaus method and we will improve it...."

Well, everyone is allowed to have his own point of view regarding the directions of technical progress. The truth most frequently originates at the point of confrontation of opinions. But when a lack of acceptance is demonstrated so openly by an official on whose decisions this progress largely depends, it is easy to predict who will win the argument.

As we were told when communicating with representatives of science, V. Mishin usually uses as the final argument his favorite phrase: "And where have you seen that this works?" It is difficult, perhaps, to find a more all-encompassing formula for conservatism and the persistent habit of retracing past steps.

In the head institute of VNIIgaz, 8 years ago, in cooperation with the West German firm Linde, an original technology was created for purifying natural gas. In terms of its basic parameters the new process has unquestionable advantages over the traditional one: with one-third less expenditure of energy the calculated productivity of the equipment is almost twice as great. It is protected by an author's certificate for invention and has been patented in the United States, the FRG and France.

It would seem that everything has been as fortunate as it could be. Our home branch institute has as partners a well-known foreign firm which, incidentally, manufactured the demonstration installation free of charge. And

the result--nothing! The installation which was installed at the Astrakhan testing ground has never been tested. They preferred to include in the plan the old Orenburg setup. It is not even clear yet whether or not the innovation will be used in the third section.

But we are speaking not only of these, possibly, individual examples. We are alarmed by the very principle: the stubborn resistance to departing from generally recognized but already outdated systems and canons. For some reason here too, at the newest gas complex, where, in the words of the Deputy Minister V. Sheremet, everything is to be "the most of the most," they will continue to burn up many valuable components that are contained in the mixture that comes from the bed. And nobody knows how long this waste will continue.

...The general director of the Astrakhangazprom Association, V. Shugorev, has no time for such "high matters" today. The "unraveling" of the first technological thread is proceeding with difficulty. The incomplete work of the installation workers is coming to the surface in some places and some things were not foreseen or completely studied by the developers themselves. They were tormented by interruptions in the supply of electric energy and steam. The emergency signals do not operate everywhere. Where is there time to think about the future....

[11 Mar 87 p 1]

## 2. Delayed Construction

[Text] Right before our trip to Astrakhan a letter came in the editorial mail which was signed by 16 workers of a gas processing plant. "We are very bothered by our understaffing with operations personnel. For example, for our industrial heating boiler we do not have the workmen for control and measurement instruments and automatic equipment or electricians on duty. The main reason is the shortage of housing and that it is difficult to get to work. We lose half of our work day on both ends of the road. These problems must be solved somehow! The regional coefficient alone will not draw skilled specialists here."

Regardless of whom we met in the oblast center, the plant or in the gas fields, the discussion always turned to social, cultural and domestic services. The problem is indeed a crucial one which arises "unexpectedly" each time a new region is assimilated. Although the variant of it here has its own specific character.

A unique gas condensate deposit was discovered only 70 kilometers from Astrakhan, which has a population of 500,000. The proximity of the large city gave the leaders of the Ministry of the Gas Industry bright dreams about a relatively easy solution to social problems. Still it is not Siberia, but "dwelling space" that must be won away from the taiga and the marshes at the expense of immense efforts. The so-called residual principle of allotting funds and resources for social needs was given an almost "scientific" substantiation in this case. But in reality everything turned out to be much different from what the masters in the ministry offices had imagined.

For many years housing construction in Astrakhan was conducted in such small amounts that it could not satisfy even those who could not be refused--the residents of decrepit (read in a state of emergency) housing supply which comprises almost 15 percent of the all the dwelling space. Where could they get a new apartment if the city construction organizations were weak and small? If the base of the construction industry was represented by one housing construction combine which in 10 years had not managed to reach its planned capacity and which was in need of basic reconstruction?

With the arrival of large-scale industry it seemed that the southern city's time had come. In the Ministry of the Gas Industry they decided not to create a separate satellite city for the workers of the complex but to develop Astrakhan itself. The city authorities, naturally, did not object to this decision.

But no construction boom was to ensue. The rich client was in no hurry to take upon its mighty shoulders the burden of social concerns. At the industrial site they assimilated record volumes of capital investments but the "blocks" allotted for residential buildings, stores and schools remained empty. They said that production was more important. A motive that is familiar from many preceding construction projects. But if one looks at it more closely, there is an implausible, false note in this.

In the local "Shanghai" that grew up on the outskirts of Aksarayskiy we got to know a couple of sympathetic young people. He was a carpenter and concrete worker of the construction administration and she was a bookkeeper. Anatoliy and Lyuba Pavlov had come to the Astrakhan Steppe from the Pskov area. They settled down in a railroad car that did not have the basic municipal services and they did not even have a postal address. They were not on the waiting list for an apartment. What is the point if, as they were told, they would have to be waiting for the "next 10 years"? They left, discussed the situation and came to the conclusion: they would go back home!

This story is one of many of its kind. Hundreds of people have already left the construction site because they had no hopes of receiving a permanent roof over their heads where they could bring their family and arrange a normal life. Well, how do those people who were luckier feel?

The chief of Drilling Administration No 82, Viktor Kalsin, can be considered an old-timer around these parts since he came here 4 years ago from the Mangyshlak Peninsula. He is married and has two children and he recently received an apartment in the southeastern microrayon. In the Astrakhangaz Trust his brigade is among the leading ones. His earnings are high because of his labor success.

"Everything is all right," he says, "but the children are homesick. Out of 32 people only the driller Tokarev and I have received housing. The rest are working under watch method--they fly in from Groznyy and Uzen or they come by land from Volgograd. How long can they go on like this, you might ask, living in two houses? Well another year or two. Then no amount of money will keep them here.... After all, we have essentially just gotten on our feet and

gained experience. Hydrogen sulfide is nothing to joke about, and not everyone is drawn to this place...."

In the Astrakhangazprom Association the "apportionment" for housing at the end of last year was as follows. Approximately 1,500 operations workers were assigned to city dormitories and almost as many are taking rooms in the private sector. More than 2,000 people have only a "bed" in temporary dormitories or they are huddling together in railroad cars. And the local builders and geologists even envy the gas extraction workers--housing is even worse for them.

With today's influx of people the shortage of children's and medical institutions, trade enterprises and public catering enterprises have become more appreciable. There are also the difficulties with transportation. It is possible to get to work either on the watch bus with the inevitable traffic jams at the ferry crossing across the Volga's tributary, the Buzan. Or on the railroad on a diesel train which for some reason is boldly called "fast." In either variant one loses almost 2 hours.

The program for reconstruction of Astrakhan, because of its new status as the center of a large gas industry, was approved only at the beginning of summer before last. All last year was wasted. The general contracting trust, Glavastrakhanstroy did not manage to provide even 60 percent of the planned figure for the introduction of housing--it failed to provide the client with 900 apartments. The results would have been somewhat higher but the people's control committee excluded from the reports three residential buildings which the commission accepted under pressure.

Our newspaper has already written about the complicated relations among the managers of the Astrakhangazsprom Association and the city authorities. The city "fathers" reasonably think that the people who arrived only a few days ago should not be given housing ahead of the almost 50,000 people who are waiting for better housing conditions. The Ministry of the Gas Industry, for its part, does not want to end up in the position of the rich uncle whose capital can be easily used by any relative. The endless arguments regarding this and the clarifications about who owes what to whom create a nerve-wracking situation.

Last year's failure in housing construction made the conflict even sharper. The gas workers were unable to give the city hundreds of apartments necessary for moving people from dilapidated little buildings that were planned to be razed this year. Now, in order to open the work front to the construction workers the association must allot the new settlers considerably more than was intended. Moreover, naturally, the interests of their own people are being infringed upon. And even without this there is the threat that the knot of mutual complaints will be pulled even tighter.

In the report at the January (1987) Plenum of the CPSU Central Committee M. S. Gorbachev used the Astrakhan complex as an example of an impermissible disparity between the development of the production and social spheres. "Here they have assimilated more than 1.5 billion rubles' worth of capital investments and there is an army of 8,000 workers and specialists employed

there, but only 3,000 of them have permanent housing. Moreover, the arrears in the construction of housing, polyclinics, dining rooms and other facilities of the social and cultural sphere was included in the plans from the very beginning. This is the sad result of an incorrect, erroneous approach to social problems....

The fair harshness of the evaluation was a good way of shaking up those who are responsible for being concerned about the vitally important needs of the people. Questions which for months and sometimes years were lost in the quagmire of departmental disagreements and drowned in bureaucratic correspondence, as it turned out, could quite possibly be solved, if the matter were taken seriously and they worked together.

Even 2 weeks after the plenum (a time period so short as to be unheard of according to previous concepts!) a joint order had been prepared by the Ministry of the Gas Industry and the main contractor for the construction of social facilities of the Astrakhan complex--the USSR Ministry of Construction in southern regions. The order, which was signed by the minister V. Chernomyrdin and A. Shchepetilnikov gave the volumes and deadlines for the work, indicated the construction sites, appointed the workers, and enumerated the organizational measures necessary to over the arrears as quickly as possible.

It was an intelligent and businesslike document.... Why not post it in dormitories and read it at meetings? Perhaps the information about the positive changes will be retained by those who, having lost hope in a solution to the housing problem, are already packing their suitcases. We shall answer this question below, but first let us fill in the gap in information.

By an order of the Ministry of the Gas Industry, this year the builders are to introduce 191,000 square meters of dwelling space. This is 2.5 times more than last year. The client has met the contractor halfway and has agreed to help--through his own forces he will finish about 400 apartments. The subdivisions of the Ministry of Construction in southern regions in Penza, Stavropol, Rostov, Kuybyshev, and Volgograd have received assignments to deliver to Astrakhan prepared construction elements for residential buildings with an overall area of more than 68,000 square meters. It is planned to construct two kindergartens, a drug store, two savings banks, two communications divisions, and three cafes. Construction will be started on a new microrayon in the northern part of the city.

There is also good news for workers of the gas-processing plant who wrote a letter to the newspaper. The deputy chief of Glavmostostroy, A. Potapov, assures us that as early as March a new bridge across the Buzan will be opened to passenger to passenger traffic--it will no longer be necessary to waste time at the ferry crossing.

Why does the collective not know of these good plans? The answer, it seems to us, is simple: they are afraid of publicity. During the past 2 months only 7 percent of the annual volume of work on the construction of housing has actually been done. How can one speak seriously about any radical change with

respect to social matters? Regardless of how you look at it, these are unkept promises.

[13 Mar 87 p 3]

### 3. How Many Lessons Are Needed?

[Text] Our car was stopped at the state automotive inspection post with the imperious gesture of a policeman with a gas mask bag slung over his shoulder.

"He has the right not to let us pass," Yu. Kuzmin, the chief of the environmental protection and gas safety service of the Astrakhangazprom Association (remember this position), managed to express his fear. And the policeman had already come up to the car.

"Show your permission to enter!" And he pointed to a road sign with the inscription: "Zone of increased gas danger." Yu. Kuzmin showed him his identification.

"And where is your gas mask?" the policeman inquired.

"In the director's office, right near here...." Yu. Kuzmin's answer did not sound very confident. After thinking for a moment the policeman deigned to say:

"Well, all right! Go ahead, but next time!..."

And we drove on, violating the established policy under the protection of the manager whose official obligation was to insist on the observance of namely the safety rules.

There are policemen at the entrance of the Astrakhan Gas Processing Plant as well. But why? Nobody asked us for any documents there.

At a production with such a danger of explosions and toxicity as a gas processing plant, the open door principle is not suitable and it is irresponsible to make a condescending decisions like: "All right, violate it once again, nothing will happen." They have taken from the earth and put into gas lines a toxic gas with a dangerous concentration of hydrogen sulfide. But how do they provide for safe working conditions?

We did not manage to meet G. Babihev, the deputy general director of the Astrakhangazprom Association (he is responsible for this): he was ill. We shall refer to his statement in the oblast newspaper VOLGA, published on 6 February of this year, under the self-sufficient heading, "Safety Guaranteed": "...We have completed a complex of sanitary-technical and organizational measures.... They provide for safety for the workers when operating all objects. All workers and the population of the adjacent population points are provided with means of individual protection for respiratory organs and transportation for evacuation in the event of the danger of gas leakage."

G. Babiyev said nothing about the fact that there is a decision from the Astrakhan Oblispolkom and order from the Ministry of the Gas Industry to move families with children out of the watch villages of the Aksarayskiy Industrial Center. They must move before the plant is started up--in September. They are still living there. The population has been provided with gas masks, but people refuse to answer the question: Has it been a long time since they checked their reliability? They know where to go when they hear the alarm? But where is this evacuation transportation? Yu. Kuzmin assured us that 30 evacuation buses are standing completely ready. Where are they? We wanted also to see an equal number of drivers who are prepared to take people away in the event of an emergency situation. We arrived at the enterprise for technological transportation and special technical equipment. There were no buses.

"Our vehicles do not stand idle, for each evacuation vehicle we have a plan for transportation. They carry the drillers," explained B. Sturov, chief of the enterprise, and he added: "We do not have enough watch vehicles...."

Excuse me, who has ever seen a fire engine that is used for planned transportation and where? And gas spreads faster than fire.

"But you should not be worried about that," B. Sturov consoled us. All the evacuation buses are equipped with walkie-talkies and they can be called to the necessary place at any time. And each of them has a set of equipment for gas safety.

B. Sturov kindly held back two of the buses that it approached. In the first one, with the No 04-97, there was nothing except a stretcher: neither a gas mask, nor medications, nor instruments for determining the level of gas pollution. In the other, with the number 04-94, there was no instrument for determining the direction of the wind so that when trying to save yourself you don't go into the danger zone.

We asked the driver, V. Meretin, to call the dispatcher on the walkie-talkie. He refused: "The walkie-talkie does not work, I sent it in for repair a couple of days ago."

But what if this is the way it is with other vehicles which are supposed to be providing a guarantee of safety?

In the event of an alarm the buses are commanded by the dispatchers of detachments of the Astrakhan Military Unit (AVCh) of the Ministry of the Gas Industry. It was created in order to provide for gas safety for the workers in the complex and its detachments do especially dangerous work. The only unit of its kind in the country for one enterprise! This is evidence both of the seriousness of the situation and the special concern for labor safety.

How do the gas safety workers provide their service? We went to the Ilmenskiy Detachment in Aksarayskay.

Before the dispatcher, A. Voronin, there is a list of the numbers of the 20 evacuation buses. He also has nearby a radio set for communicating with them. We asked him to demonstrate how it will operate in the event of an alarm. A. Voronin called the vehicles by their numbers without any special enthusiasm. He got up to 16 and angrily threw down the microphone.

"They are not answering!" To the unspoken question came the response:

"Our walkie-talkies do not work. It has been 4 months since they were delivered and we have never once managed to get hold of the evacuation buses. But the communications experts assure us that they are in good working order!"

The vehicles intended for evacuating people in the event of a gas alarm cannot be controlled. They do not know where they are at a given moment. Is this the way it should be? A. Voronin is silent, as though this is not his concern but a matter for the higher-ups. He is doing his job correctly: he comes to work his shift and sits next to the inoperative radio communications equipment.

Later the chief of the AVCh, R. Tugushev, could not even recall whom he had gone to in order to arrange communications. He asserted in a studied way: "At the necessary time all the evacuation vehicles will be in the necessary place." Excuse me, but how will the drivers know the time and place? Will a little bird tell them?

"I can vouch for the four vehicles with groups of gas rescue workers. They belong to the AVCh and they respond immediately!" A. Voronin became cheerful.

"Call them!"

The dispatcher was about to do that but then he cast down his eyes:

"Nobody will answer the call now, they are all at...an open party meeting."

This was at 12:05 pm on February 20. The installations were being adjusted at the plant. From this occasion we knew what could take place while the gas rescue workers and the drivers were sitting around. The chief of the AVCh spoke at the meeting. Later he explained that this was a convenient time for meetings, that they had a break at that time. It is difficult to believe that responsible officials would play this game of chance.

Next to the plant was another AVCh detachment. Groups of gas rescue workers were on duty here, ready to work in extreme situations. N. Piligrimov, the commander of the group for preventive work was extremely angry when we showed him the journal for registering outside calls. There were many calls and this is natural: the equipment was being tested. And all kinds of things happened during drilling.

"You do not have the right to look!" N. Piligrimov cut in. "I will not answer your questions without permission from the chief of the AVCh!"

Now think of what kind of secrets lie here? From whom are they being kept? On the contrary, each critical situation, any case of an unforeseen discharge of gas (and they take place) and the reasons for this should be discussed in the brigades and at the installations. How else can they learn lessons?

Remaining silent about things like this leads to a situation where some people go around the area of the plant without their gas masks. They say they have become accustomed to it. They do not want to believe rumors that exaggerate the danger and there is no reliable information on the incidents that take place.

We address all of our accumulated questions to V. Nemkov, the head engineer of the association.

"But what can we do? We cannot give an order to Tugushev, the chief of the AVCh! He is directly under the jurisdiction of the Ministry of the Gas Industry and he is responsible for gas safety and the evacuation of people."

On that same day at the plant there was a meeting of the special commission which investigated the case of the death of a senior operator, Lazarev, while performing his official duties. The reasons for the death would be determined in detail by the board of medical experts and the investigation. But what did carelessness have to do with this tragedy! Nobody noticed the "loss" of the senior operator during his shift in the middle of the night. The body was discovered accidentally after more than 2 hours. First aid arrived an hour and 10 minutes after being called and they had to travel only 8-10 kilometers. Who is responsible?

Along with N. Zolotukhin, the plant's head engineer, we made a tour of the installations that had been put into operation. In the machine halls of the technological installations telephones were already working. But we did not manage to reach the plant's medical aid point on any of them. Nobody would pick up the receiver. To be sure, the dispatcher of the gas rescue service responded immediately. But how would he find his buses if there were really a need to evacuate the people?

"Look, we have ordinary telephones," said the senior operator, S. Dzyuba. "And they should be explosion- and fireproof."

Only recently did they put an intercom between the installations and the central switchboard of the plant. But the "loudspeakers," as they are called, are not in operation in the most dangerous places, for example, at the 171st installation. And yet even at night the operators make their way alone along the levels of the shells: they must inspect the equipment. How do they call for help?

The gas rescue workers are called several times a shift to do especially dangerous jobs. They discover imperfections and mend the welded seams of the pipelines. And the gas is toxic! The adjustment of equipment is more like a battle than a normal assimilation of planned capacities.

"...It is painful to look at the torments of adjustment even for us, who have experience in working in this branch," write the authors of a letter to the editorial staff. "If the people had their way they would change over to imported equipment. It is already the 20th of February and at many of the installations that have been accepted for operation they have not completed... the installation or construction and insulation work. Not a single one of them can be operated under normal technological conditions.

"They have started up equipment that has the danger of gas leakage and explosion without any control or measurement instruments to warn of gas in the air. They have started it up blindly and have not allowed time to adjust and test the control system or the system for protection and blocking in the event of emergencies involving discharges of hydrogen sulfate. There have already been several poisonings.

"We have no place to change clothes or wash, we have no drinking water, there is not even any mention of an emergency shower. If the toilets have been constructed they are closed--there is no water...."

The plant's head engineer N. Zolotukhin finished reading this letter and summed up:

"This is all true, the people knew what they were talking about."

"They knew, but they did not want to sign it."

"Give it here, I will sign it!" suggested Zolotukhin. "I have forgotten the last time I slept peacefully, I feel like I live on a powder keg."

How do they justify violations of safety procedures and superhuman efforts? In almost 2 months of the "battle" they have received less sulphur than they should have received from the two installations in the first section. This is the same as placing the cart before the horse. First they reported that the release document had been signed and then they eliminate the shortcomings.

Are there many of them? The technical inspectors of the branch trade union central committee issued prescriptions to eliminate 1,290 violations of norms and rubles for the protection of labor.

The state fire inspection team flatly refused to sign the document for the acceptance of 10 facilities of the plant's first section. They found a simple way out: they eliminated them from the startup complex. The fire inspectors were satisfied: their conscience was clear and they could sleep peacefully.

...In the 171st machine room the red light flickered on the installations, warning that they were exceeding the permissible level of concentration of toxic substances. Then the gas danger siren blew. It was difficult to breathe. It turned out that next door they had unloaded by hand a container with volatile and toxic chemical compounds.

The siren whined.... From the central control board nobody asked on the intercom: How are the people here? Nobody was disturbed. Either the

automatic signal had just been turned on in the central control board, or they were careless on the watch.

We returned from the complex along with V. Spirin, the head of the department of the petroleum and gas industry and geology of the Astrakhan party obkom.

"The startup of such a complicated plant is not a simple matter. Of course, there are shortcomings," he said. "But the difficulties...they are justified."

Difficulties and violations are not synonyms. In recent years the convenient expression "ambiguous" has originated. We should call the organizers of the show of the startup and hold them responsible for the violations. And they would explain: It is ambiguous!

No, it is clear! Just as the Chernobyl tragedy was clear. Just as official greed and responsibility for the consequences of hasty actions on which the safety of people depend are unambiguous. And to any attempt to justify violations of safety techniques by the "interests of production" we must all react unambiguously. When this article was already prepared for press, an announcement came from Astrakhan: there was an accident in the underground storage facility for unstable condensate and petroleum products. Because of the sudden discharge of gas four people died.... How many more lessons and how many more warnings do they need?

[14 Mar 87 p 3]

#### 4. Nature in Danger

[Text] These questions arose as soon as the first exploratory well gave news of the discovery of a new gas condensate deposit with a better composition of materials than had ever been known before. Is there a reliable means of protection from the extremely dangerous hydrogen sulfide that is fatal to everything living? Is there a possibility of protecting nature from the influence of many other harmful chemical compounds that are formed during the processing of this toxic gas? How will the Astrakhan Gas Complex influence the condition of the atmosphere and soil, the cleanliness of the main river of Russia and its numerous branches and tributaries? Will the ecological balance not be disturbed?

One question is more difficult than the next. But they must be answered. For we are speaking about the Volga delta, where all nature is unique. Here in the lowland ponds are natural breeding places for the most valuable fish of 43 species. Here is the purebred "fish nursery" that maintains the genetic stock of sturgeons for the entire planet--the Volga-Caspian basin produces nine-tenths of the world catch. Here is an international class biospheric preserve--the home for 240 species of birds, including the rarest ones. Here, finally, is where they grow the famous Astrakhan melons and tomatoes....

Scientists think that the Volga-Delta is our national treasure, second only to Baykal. An ancient symbol of these parts was the dazzling white swan and the tender color of the lotus blossom. And now Astrakhan has a new symbol--the

gas torch. It has flared into the sky from the gas processing plant. It is dangerous for the flora and fauna in the neighborhood.

When they decided to place the gas processing giant next to the Astrakhan jewel, they began the development of the plan correctly--with measures for the protection of the unique nature. In the plan they wrote: not a single leader of Volga water used in production will go back into the river. Liquid wastes that cannot be purified cannot be stored at a depth of a kilometer and a half underground. They envisioned one of the highest degrees of purification of highly toxic gas in the world--99.6 percent. A positive conclusion was reached by the government expert commission.

And now the wells in the first section of the plant have been put into operation. It is time to check the promises against reality.

The Astrakhan Zonal Hydrometeorological Observatory on certain days registers impurities of toxic gases in the air that greatly exceed the maximum permissible concentration. Sulfur gas--by a factor of 10, nitrogen dioxide--by a factor of 5, and the especially dangerous hydrogen sulfide--by a factor of 14. Two short-lived discharges have been registered when the concentration of harmful substances was close the extreme. Of course we should like to write all this off as unavoidable difficulties of the startup period. But there are even more serious causes for alarm.

The first deputy minister of the gas industry, V. Timonin, publicly assured us that under no circumstances would the plant be put into operation without 100 percent readiness of the facilities for protecting nature. But in February, a month after the plant had been started up, of the 43 facilities for the protection of nature in the first section the work commission had accepted only 17. The startup was preceded by desperate rush work for the construction of purification sewage installations. After this the inspectors of Kasvodnazor wrote: For the basic facilities--123 shortcomings, for preliminary purification--77.

As the deputy procurator, V. Zobolev, announced, the oblast procurator's office had filed a criminal suit concerning cases of artificially increasing the volume of work at purification installations and forging the signature of one of the members of the work commission on the document for release. For violations of the RSFSR water code the general director of the Astrakhangazprom Association, V. Shchugorev and his deputy, G. Babiyev, were fined.

We saw these violations ourselves. Next to the installation for obtaining sulfur there was a whitish lake of industrial wastes. But nobody was even paying any attention to it.

The harmless production that had been promised had not come about yet. The technologically truncated, repeatedly cut "startup facility of the year" had been put into operation. Nature was now beginning to pay for this.

"Everyone understands that biological purification of wastewaters must be started during a warm time of the year," says the senior engineer of

Kaspvodnavor, V. Khomutova. "The microorganisms do not multiply in the cold. And they tried to assure me that it was possible to put it into operation in the winter. This is real deception!"

The construction of the complex has already caused 8 million rubles' worth of damage to fish breeders alone. They observed an increase in the level of groundwater, which can turn the fruitful lowland into salt marshes and bogs. Workers of the Astrakhan preserve have already experienced the smell of chemicals.

"What do you suggest, stopping the plant?" V. Spirin, the chief of the division for the petroleum and gas industry and geology of the party obkom, asked us.

One is apparently supposed to understand this irony as follows: our train has left, the country needs sulfure. There is no doubt that it does. But not at the price of irreparable damage to the Volga lowlands. There is still a good deal that can be corrected, completed and envisioned. But to do this it is necessary to have an honest, open discussion--without covering up the unpleasant facts and smoothing over the rough edges.

Did the oblast party committee really not know about the arrears in the construction of facilities for the protection of nature, about the incomplete jobs that existed when they were accepted? Was this situation really not clarified in a departmental order when the plant was started up?

"We the undersigned members of the work commission for receiving the plant into operation...." Among those who signed this document there are, as one would expect, specialists from supervisory inspectorates who are responsible for the purity of the water, air and soil and for the safety of the people--L. Korneyev, V. Khomutova, V. Kabanov and K. Kurmanov. We are naming these names not in order to accuse them of faintheartedness or professional incompetence. They courageously resisted the pressure, they held out to the last, and their conscience was tortured.

V. Kabanov, the technical inspector of the branch trade union central committee, was almost called an "enemy of the people." The engineer of the water inspection team, V. Khamutova, was threatened with great unpleasantness.

For the sake of fairness one must also name those who "organized" the release of the capacities of the first section, guided by an irresistible desire to turn in a report as rapidly as possible: the job is done! These include the chairman of the work commission, the deputy chief of the main gas processing administration of the Ministry of the Gas Industry, M. Radchenko, the deputy minister of the gas industry, V. Sheremet, and the division chief of the party obkom, V. Svirin.

The "twisting of the arms" of the main inspectors ended in success: the official status of the opposing sides was too diverse.

The trade union inspector, V. Kabanov, refused to sign the document attesting to the readiness of 15 startup facilities. While not accepted for "retail"

trade they were still put into operation wholesale: the summary act document for acceptance was signed by Kabanov who explained: "I could not hold out against the siege."

Each of the undersigned, having placed his signature on the document, immediate sat down and wrote a letter to the higher organization in order to notify them of a long list of shortcomings at "their" facilities. Why? Did they want to compensate for their bad conscience? Or did they want to protect themselves just in case--they could say, I reported this?...

The same workers of the inspection teams for the protection of nature, when the alarm was sounded, said that the operations workers themselves do not know precisely and in what quantity the complex discharges wastes into the atmosphere. They have not studied the influence of these discharges on plants, animals and man. There are no calculations for the future--what will happen after 5, 10 or 15 years?...

But how can this happen in a plan in which, as we were assured, "everything possible at the modern level of knowledge has been taken into account"? Scientists of the Astrakhan Technical Institute of the Fish Industry and the Farm delved into the 48th volume of the plan--"Measures for Protection of the Environment in the Zone Influenced by the Gas Complex" that was developed by the YuzhNIIgiprogaz Institute. And they were stupefied. We will not deny that we were surprised, too.

"At the present time," it says in the plan, "there are no reliable methods for calculating the pollution of the air from the sources in the industry.... But...one can assume (?!?) that the zone in which the gas content will exceed the maximum permissible concentrations will move in the wind over many kilometers (?!)."

And what will this compromise mean for nature? "The application of the traditional blowing out of wells is inadmissible...." the plan asserts. And further: "Unfortunately, we cannot fully refrain from utilizing this technology." Indeed: if it is impossible, but you want to very much, then it is possible.

We perked up our ears at this decision as well: after all kinds of purification, it is intended to irrigate fields of feed crops with wastewaters. And why not use the water again in the technological cycle? It turned out that was impossible. It is not suitable for production, it is too dirty....

The meticulous fish breeders tried as hard as they could to establish an annual "growth" on all toxic discharges. They obtained a figure of about 100,000 tons from the first section alone. Moreover, this does not include 2.5 million tons of supposedly "harmless" carbonic acid gas.

The Astrakhan fish breeders were faced with a classical question: What to do? They checked to see how the program for environmental protection research was being carried out in the zone of influence of the complex by all the institutes to whom it was entrusted. Nobody had done anything. Then, having

consulted with the party obkom, they decided to hold a coordination work conference.

They sent invitations to 60 interested scientific research and planning organizations in order to develop a unified plan of action.

The participants in the conference came to the conclusion that it is necessary to combine forces of specialists for the protection of nature and provide for coordination of all their work. To do this it would be expedient to create a special section under the scientific and technical council of the party obkom. It would be desirable, following the experience of other regions, for the oblispolkom and the Ministry of the Gas Industry to have concluded an agreement with a nondepartmental scientific organization for the development of a territorial comprehensive plan for the protection of the unique nature of this region. The conference addressed the section for earth sciences of the presidium of the USSR Academy of Sciences with a request to take on scientific leadership of the environmental protection program. Everyone agreed with the idea that the gas complex needed a solid scientific center in order to study the ecological situation and predict undesirable changes.

The decisions of the Astrakhan conference, of course, do not have mandatory force. But they are backed by a well-substantiated alarm which cannot be ignored in favor of narrow branch interests and departmental ambitions. We must, we are simply obligated to know the price that has to be paid for sulfur and other "chemicals." We must be firmly convinced that this price is not unreasonably high.

From the editors: The remarks published on 11-14 March from our correspondents concerning the establishment of the gas industry in Astrakhan Oblast pointed out many complicated problems that require farsighted solutions. Among them are the creation of modern technical equipment and technology for extraction and comprehensive processing of hydrocarbon raw material, the need for accelerated development of the social sphere and reliable protection of people and nature from toxic products. The editorial staff hopes to receive an answer to the questions that have been raised from the leaders of interested branches, the USSR Gosplan, the USSR Academy of Sciences and the Astrakhan CPSU Obkom and Oblispolkom.

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CSO: 1822/113

UDC 338.45:622.276

## NEW MANAGEMENT METHODS IN OIL INDUSTRY CALLED FOR

Moscow NEFTYANOYE KHOZYAYSTVO in Russian No 12, Dec 86 pp 3-7

[Article by S. M. Levin, VNIIIOENG [All-Union Scientific Research Institute for Management Organizations and Economics of the Oil and Gas Industry]: "New Conditions for Management in the Petroleum Industry"]

[Text] At all enterprises and organizations of the petroleum extraction complex--industrial, drilling, main pipeline transportation, information computer service--it is intended in 1987 to implement measures for improving the organization of planning and incentive, increasing the role, responsibility and initiative of labor collectives in solving problems of labor and management, developing and implementing plans, and improving conditions for the labor and life of the workers.

The implementation of these measures on the basis of a radical restructuring of the economic mechanism, the introduction of a system of stable economic normatives, and the strengthening of the influence of cost accounting [khozraschet] on the development of the creative initiative of the labor collectives should provide for changing the branch over to the new conditions for management. An important one of these elements is extensive application of economic methods of management that make it possible to take full advantage of the capabilities of the enterprises' collectives for adopting optimal management decisions in order to achieve high final results of production and increase its effectiveness.

To this end, the branch has completely restructured the economic mechanism and is considerably expanding the rights and increasing the responsibilities of labor collectives.

The following are earmarked for a radical restructuring of planning.

1. A considerable reduction of the number of indicators that are established for the enterprises in the five-year and annual plans (15 instead of several dozen). Moreover, the activity of the associations under the new conditions of management will be evaluated according to:

product sales in keeping with agreements that have been concluded;

the extraction (delivery) of petroleum (and gas condensate);  
the development of science and technology;  
the startup of fixed capital, production capacities (including wells), residential buildings and other facilities for social purposes;  
the total profit from all kinds of activity.

2. A basic expansion of the utilization of economic normatives when planning the activity of associations.

In the five-year plan the following economic normatives are established for the associations, enterprises and organizations:

the increase (reduction) of the wage fund for industrial production personnel or an increase (reduction) of the volume of production in the annual plan as compared to the assignment of the five-year plan for the corresponding year;  
the formation of the wage fund and personnel of associations and organizations for contract drilling and main pipeline transportation;  
the wage fund for management, engineering and technical personnel and other employees;  
the wage fund for designers, technologists and scientific workers;  
the formation of the fund for the development of production;  
deductions into the unified fund for the development of science and technology;  
the formation of the fund for social and cultural measures and residential construction (FSKM and ZhS);  
the formation of the material incentive fund (FMP);  
payments from production funds and deductions from calculated profit into the state budget (in the annual plan).

Economic normatives are developed by the ministry of the petroleum industry as part of the control figures and are submitted to the enterprises before they start to draw up the five-year plan. The normatives established in the five-year plan are not subject to change or reestablishment.

On the basis of established indicators, limits and economic normatives that are directed toward increasing the dependency between wages and the final results of the work of the production collectives, enterprises of the branch independently develop plans for economic and social development and financial plans, thus providing for effective utilization of material, labor and financial resources.

The strengthening of economic methods of management and extensive application of economic normatives under the new system of management directly increase the motivation of labor collectives of the petroleum industry to increase the effectiveness of production.

Thus the application of the normative method of planning and forming the wage fund (the wage fund of industrial and drilling enterprises and pipeline transportation organizations, and the material incentive fund for the production association as a whole) in combination with the granting to the associations of the right to determine independently the planned number of workers not only motivates the enterprises to reduce labor expenditures, but also increases the dependency between the amount of the wage fund and the optimal utilization of extraction capabilities of the petroleum region.

The utilization of advanced experience in applying progressive normatives in the intraproduction system of management should contribute to implementing a complex of measures for deepening cost accounting and increasing the influence of its forms and methods on the growth of labor activity of the collectives of shops, sections and brigades as well as each worker in achieving high final results.

The associations of the branch are also being given greater rights in providing for their own technical and social development. Thus under the new conditions of management the enterprises have greater rights to form and utilize the fund for the development of production. Its volumes are determined in the plan and are created according to stable normatives that are approved for the various years of the five-year plan in growing amounts as a result of depositing into this fund a growing proportion of amortization deductions for restoration. The money in the fund for the development of production accumulated by the associations is used independently by them for financing capital investments related to technical reequipment, reconstruction and expansion of production in the creation of new capacities for extracting and transporting petroleum. If it is economically expedient the associations are granted the right, using amortization deductions intended for capital repair, to invest additional funds in the technical reequipment of fixed capital in excess of the envisioned centralized capital investments.

The fund for social and cultural measures and housing construction is formed in associations of the branch according to stable normatives established for the various years of the five-year plan, in percentages of the material incentive fund. With a branch normative of the FSKM i ZhS equal to 50 percent of the amount of the FMP, for associations this ratio is differentiated with the agreement of the central committee of the branch trade union, depending on the need of the enterprises to construct social and cultural facilities and also on expenditures on their maintenance. When the associations develop the estimate of the utilization of this fund it is recommended that they use 50 percent of the money for the construction of housing, children's and school institutions, and facilities for public health and social-cultural purposes.

Additionally, they will be permitted, with the agreement of the labor collectives, to independently transfer under the policy of shared participation money from the FSKM i ZhS to the ispolkoms of local soviets of

people's deputies and other organizations of construction of facilities for nonproduction purposes, mainly housing.

The association's rights to utilize incentive funds are also being expanded. With the agreement of the collective it can transfer part of the money from the FMP, the FSKM i ZhS and the fund for development of production to associated enterprises, construction, repair-construction, transportation and geophysical organizations, and the workers supply administration and divisions of the associations in order to provide incentive for solving the most difficult technical problems and carrying out especially important production assignments as well as conducting accelerated work for technical reequipment of fixed capital and the construction of facilities for a nonproduction purpose.

Associations and enterprises of the branch will have greater rights to utilize the wage fund formed according to the established indicators and normatives. Thus the managers of associations and enterprises will be granted the right, with the agreement of the trade union committees, to introduce differentiated increments and additional payments for workers and specialists for occupational mastery and combining professions as well as expanding service zones. The associations of the petroleum industry will be able to create a reserve for the wage fund in the amount of up to 1 percent.

The unutilized wage funds of drilling organizations and pipeline transportation organizations, under the condition of fulfillment of the planned assignment in terms of the number of wells completed by construction and also for delivery of petroleum to the consumers, will transfer into the material incentive funds the profit left at the disposal of the association (according to a policy similar to the one in effect for industrial enterprises).

In addition to this, the enterprises will have greater responsibility for the utilization of the wage fund. When there is an overexpenditure of the wage fund, not only the savings on the wage fund from the beginning of the year, but also the money previously deducted into the FMP and also the basic part of the FMP will be used to cover it.

The material incentive fund for the next year is formed by associations of the branch according to stable normatives established in the five-year plan. The incentive funds for the associations are formed according to the branch system which envisioned increased motivation of labor collectives to achieve good final results in the work of the branch--the extraction of petroleum and gas. This is achieved by the formation of the FMP in the five-year and annual plans according to normatives (ton rates) for the volume of extraction of oil, gas condensate, and petroleum and natural gas. The ton rates are established in the five-year plan for the associations in a differentiated way for the various years in kopecks per 1 ton of extraction of oil, condensate and gas (1,000 cubic meters of gas is equal to 1 ton of petroleum) in keeping with the amount of extraction established in the five-year plan for the corresponding year.

The application of ton rates to form the material incentive fund motivates all enterprises included in the petroleum extraction production association (with the exception of construction, geophysical, planning and scientific research organizations and also agricultural enterprises, trade and public catering organizations whose economic incentive funds are formed according to special methods). The utilization of this system for creating incentive funds during the process of developing the plan and implementing it provides for additional motivation of the collective to apply an optimally progressive organizational structure for the production association and to reduce labor expenditures throughout the entire technological chain for the extraction of petroleum.

When the associations of the branch are changed over to the new system of management they will introduce:

as an anti-expenditure mechanism--incentives for savings and thriftiness through deductions into the material incentive fund of 10 kopecks from each ruble in savings resulting from the reduction of the planned level of expenditure by 1 ruble of commodity output (this economic mechanism is also in effect when there are overexpenditures, but the material incentive fund is correspondingly reduced).

incentives for improving the quality of the preparation of petroleum through deduction into the incentive fund of up to 50 percent of the above-plan profit received as a result of increasing the additional payments to the price of the petroleum that is sold as compared to the planned rebates or increments to the wholesale price.

In order to provide incentives for economizing on petroleum expended for their own needs, the volume of extraction when calculating deductions into the material incentive fund of the association is increased (reduced) by the amount of savings (overexpenditure) of petroleum used for production and technical needs and losses as compared to the established normatives.

In order to create increased material motivation of the collectives of enterprises to make optimal use of the extraction capabilities, taking into account the significant effect from the application in the national economy of each ton of petroleum extracted in addition to the plan, for 1 ton of above-plan petroleum an additional 5 rubles are deducted into the material incentive fund of the production association.

Within the limits of the tonnage rate set for the petroleum extraction production associations there is an interbranch system which envisions separate deduction for their enterprises into the material incentive fund;

for industrial enterprises (with the entire complex of nonindustrial service businesses)--from the profit of the association from industrial activity;

for contracting drilling organizations--from profit from contract drilling.

The material incentive fund in contract drilling organizations is formed depending on the number of wells that are completely constructed and released to the client and the planned normative established on the basis of

assignments of the five-year plan for one well that is completely constructed and released to the client. Additional deductions for above-plan wells that are released to the client are made taking into account the increase (reduction) of the well-days that the released well has been in the possession of the client as compared to the planned schedule.

In production associations of the petroleum industry a unified fund of material incentives is created which includes in addition to the FMP funds from other special bonus systems:

deductions into the FMP for the creation, assimilation and introduction of new technical equipment;

money for bonuses for contribution to invention and efficiency proposals;

bonuses for the delivery of products for export, the production of consumer goods from production wastes, the startup of construction facilities, and improvement of product quality.

The unified material incentive fund is expended according to an estimate which is discussed in the labor collective and approved by a joint decision of the administration and the trade union committee of the association.

Taking into account the indicators for the evaluation of the activity of associations under the new condition of management of enterprises, they have developed and are applying a system of bonuses that is directed toward providing incentive for the final results of the activity. Here bonuses play a greater motivating role for fulfillment of plans and contractual commitments for the delivery of products, raising the technical level and improving the quality of products, reducing the production cost of products, and economizing on all kinds of material and labor resources.

In order to ensure stable activity of the branch under the new conditions of management, the Ministry of the Petroleum Industry intends to form a centralized fund of financial resources according to stable normatives.

The money will be used for:

the creation of a unified fund for the development of science and technology;

the formation of reserves for the material incentive fund and the fund for social-cultural measures and housing construction;

rendering temporary financial assistance to associations, enterprises and organizations;

financing losses and other planned expenditures of enterprises and organizations that operate at a loss or are less profitable.

Normatives of deductions from the calculated profit for forming a centralized fund of financial resources in the Ministry of the Petroleum Industry are established for the associations, enterprises and organizations in the five-

year plans. The associations will be permitted to form a financial reserve in an amount of up to 5 percent of the normative of circulating capital from profit that is left at their disposal.

Under the new conditions of management the associations of the petroleum industry keep accounts with the state budget according to established normatives from the sum of calculated profit from industrial activity, contract drilling and information computer service.

The economic mechanism that is directed toward eliminating above-normative supplies is also being strengthened through the introduction of an additional payment into the budget from the value of above-normative supplies of commodity and material values and uninstalled equipment for which there is no bank credit.

The new system of management in the petroleum industry embraces all aspects of comprehensive improvement of the economic mechanism: the organizational structure, planning, financing, supply, price setting and incentives. Acceleration of the growth rates of the effectiveness of the petroleum-extracting industry depends on successful and prompt implementation of measures for comprehensive application at enterprises of all elements of the new management mechanism. In order to achieve this it is necessary to ensure high activity in organizational and economic work at all levels of management of the branch and a persistent search for reserves for increasing the extraction of petroleum, improving the utilization of production capacities, and reducing labor and material expenditures. It is necessary for each worker in the petroleum industry to participate actively in the solution to this problem.

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CSO: 1822/104

## ECONOMISTS ON NEGATIVE ASPECTS OF UNEARNED INCOME

Moscow PLANOVYE KHOZYAYSTVO in Russian No 3, Mar 87 pp 124-128

[Article by A. Simonyan: "Economic Methods of Combating Unearned Income"]

[Text] In January 1987 the USSR Academy of Sciences Economics Institute held a discussion on the following topic: "The Nature and Structure of Unearned Income and Economic Methods for Overcoming Them." This discussion was organized by the USSR Academy of Sciences Economics Institute in conjunction with the political economics section of the NEO [not further expanded]. L. Abalkin, USSR Academy of Sciences corresponding member and economics institute director, opened the discussion.

A. Sergeyev (USSR Academy of Sciences Economics Institute section chief, doctor of economic sciences, professor) presented a speech on "The Nature and Structure of Unearned Income and Economic Methods for Overcoming Them."

The primary historical form of unearned income is income arising on the basis of the system of exploitation of someone else's labor. This form of unearned income was liquidated in our country with the completion of the transitional period.

Among unearned income based on the exploitation of someone else's labor in socialist society we may cite income arising as a result of misappropriations, bribes, extortion, speculation, commercial mediation, underground private enterprise activity, etc.

Another, more widespread, type of unearned income is associated with distortions and direct disruptions of the socialist principle of distribution of wealth in accordance with labor in the course of the economic activity of state and cooperative enterprises. We are speaking here of the conscious disruption of the conditions of economic activity by the managers: price raising, mark-ups disruption of the order of writing off material goods, plan corrections, etc. performed for the purpose of improving the enterprise's financial position and gaining wages and premiums for the collective which are not substantiated by actual labor. The unearned income caused by levelling, and poor organization of wage payments which give rise to actually overpaying some workers at the expense of underpaying others, has a more concealed character.

The scope of unearned income and its effect on the country's economic life have ceased to be merely the subject of administrative and criminal legislation. They have objectively "entered" the economic management mechanism and are having a negative effect on the processes of social reproduction and economic growth as a whole.

Existing under conditions of mismanagement and unsatisfactory accounting, unearned income intensifies the general disorganization of social production, introducing elements of anarchy and lack of control into it. For the most part this applies to the realization of unearned income by means of mark-ups, which are distributed uniformly throughout the sectors and regions. This makes it practically impossible to compile a unified state plan which is balanced by resources, and dooms to failure any measures for increasing the effectiveness of centralized planning.

The tendency toward expanding the sources and growth in volume of unearned income radically contradicts the labor principle of socialist ownership and undermines it. Unearned income has given rise to an ever widening schism between the differentiation of workers and families by amounts of wages, on one hand, and their property ownership differentiation on the other.

The expansion of unearned income broadens the economic and social-psychological base for consumerism and materialism, and in the socio-political sphere it facilitates the suppression of activity or its subordination to mercenary interests not only of those who already live on unearned income, but also of those who are as yet indirectly affected by unearned income, subverting faith in the social justice and value of official moral criteria.

In speaking of the methods for overcoming unearned income, A. Sergeyev noted that the economic management mechanism and its legal foundations must stimulate enterprise management and collectives toward maximally reducing production losses. Only on this basis will it be possible to put an end to the immoral practice of lawlessness by officials guilty of write-offs and losses associated with unearned income.

The reason for the widespread extent of unearned income in the national economy is the loss by part of the workers of the sense of collective ownership of all the people's wealth, the ownership of production at the enterprise. Under these conditions it is inevitable that an inward alienation of the rank-and-file workers from the problem of objective national economic accounting should arise. Taking on a closed-burocratic character, the system of accounting finds itself incapable of withstanding the tendency toward expansion of the sources and growth in volume of unearned income. A cardinal means of combatting unearned income is the development of socialist production self-government of the people as a whole and of each labor collective.

The realization of the Regulation on Individual Labor Activity will become a serious factor in limiting unearned income. Therefore, we must establish control-evaluative and financial relations which would not allow the subjects of this activity to carry on unregistered production at the expense of public resources. The amounts of their income should not go beyond the socially normal boundaries.

In order to accomplish this, it will be necessary to substantiate such limits for various types of activity and to maintain strict control over the amount and final distribution of income.

A. Dolgova (chief, sector on general problems in criminology, All-Union Institute for the Study of Causes and Development of Measures for Crime Prevention; doctor of juridical sciences; professor.)

Criminological studies give us reason to believe that there are differences in the material provision of contingents of the population which cannot be considered regular for the given stage of development of socialist society. We see, for example, the emergence of two polar groups: those who have especially vast funds at their disposal, and those with rather limited income. Moreover, there is an unsubstantiated shift of certain contingents of the population (within the limits of the scale for socio-economic differentiation) from one level to another as a result of the lack of coordination between their actual level of lifestyle and the amount of income provided by law. Thus, according to the research data, the provision of workers in trade and consumer services with expensive items was in a number of cases greater than for workers employed at heavy industry enterprises who earned a higher wage.

Surveys of citizens showed that the emergence of groups of people with especially high material provision is associated primarily with disruptions in the socialist principles of wages paid for labor, with the absence of proper control over the measure of labor and the measure of consumption, and with anti-social behavior. On the other hand, the existence of an opposing group with an impoverished material-estate environment (in fact lumpenized) is explained by the abuse of alcoholic beverages, by a dishonest attitude toward labor, and by shirking socially beneficial labor. In some cases there is also the unlawful redistribution of income as a result of speculation, bribe taking, extortion, deceit of customers, and other occurrences.

Therefore, an acute need has arisen today for creating a reliable system of protection for socialist property, a system of economic management to protect against anti-social encroachments. At the same time, an acquaintance with the economic, sociological and social-psychological literature dealing with certain sectors of the national economy, specifically trade, testifies to the fact that the authors are studying and trying to solve these problems as though there were no crimes or other anti-social occurrences here. And yet we know that organized groups of economic-mercenary criminals have been exposed, who have operated in trade for many years. And unfortunately, some of the members of these groups occupied responsible positions. Therefore, at the present time we should consider the consequences of illegal activities and the economic situation in those sectors and regions where it bears a relatively widespread character.

Creating a system for protecting the economy against anti-social activity (misappropriations, mark-ups, etc.) does not presuppose an increase in the number of control organs of a preoccupation with the system of interdictions. Rather, we are speaking of a situation whereby the system of economic indicators itself, the economic management mechanism, include such moments which would signal that something is wrong. They must be organically tied with technological and other processes. Moreover, the inadmissibility of getting carried

away with interdictions may be illustrated in the example of the future application of the law on individual labor activity. Thus, one of the motives in expanding individual labor activity is to allow individuals to work as much as they consider necessary, and to earn appropriate wages. But here the question arises: won't it happen that after a certain time and main mass of young people will flock to the educational institutions and to the spheres of services associated with consumer service? It is also important that in the process of individual labor activity, labor receives a social evaluation. We cannot count on the spontaneity of the market. Criminologists know that often such "spontaneity" conceals monopolistic prices set by criminals. The question of providing raw material, spare parts, etc. to persons engaged in individual labor activity must also be resolved. Otherwise this may lead to an increase in crime.

A. Yeremin (USSR Academy of Sciences Economics Institute, doctor of economic sciences, professor). We should, in our opinion, consider also the principle difference between distribution by labor and "distribution by cost". The latter presupposes the possibility of obtaining unearned income. Even under conditions of commodity production, the value exchange in each individual case is non-equivalent. We must also see the difference between income in the socialized economy and income within the framework of private ownership activity. The immediate social character of labor within the framework of public ownership is manifested in that its wages are paid according to socially regulated standards which have taken into consideration the social needs for further development of production. Income from non-socialized labor has a different social content. In this case, not only is all the income from labor kept by the individual, but also that which usually contains an unearned element due to the fact that the product is sold at prices exceeding the labor expenditures.

The delineation of unearned income into "illegal" and "legal" has important significance for economic science and practical application. "Legal" unearned income arises not only within the framework of individual labor activity, but also as a result of the effective economic management mechanism. For example, in agricultural production the evaluation by the indicator of a "bumper" crop makes the wage payment unjustifiably high, while the wages of certain individual contract brigades often make it possible to pocket income which is the result of labor of other specialists.

The emergence of unearned income in social production is the result of payment for monetary indicators, for profit, and not for the actual input of specific labor expenditures. The cost indicator, including also profit, depends on a number of factors, and primarily on the price level. If income depends on the cost indicator, then it is capable of taking on an unearned (non-labor) character. The reduction of the role of the wage rate to 50% indicates, as a rule, a "search" for means toward unearned income. As a result of this, an imbalance arises between monetary income and its material coverage, giving rise to negative socio-economic consequences. We must evaluate more consistently the work of the economic sectors in terms of actual labor results and orient it toward the production of consumer cost.

A. Krylov (USSR Ministry of Internal Affairs Academy, candidate in economic sciences).

The existing legislation, as for example the Criminal Code, has over 60 articles providing for responsibility for unearned income. Among them are not only those concerning the competence of the law enforcement organs (misappropriation, speculation, bribery, etc.), but also those associated with the production of poor quality products, with distortion of accountability, with abuse of service position, etc. However, these articles "do not work" because it is difficult to prove direct intent here. Therefore, an important place in solving these questions belongs to improving the economic management mechanism and overcoming the causes and conditions of an economic character which facilitate the realization of unearned income.

Let us take, for example, the production of poor quality goods. If they are produced, they must be sold at low prices. However, in practice, as a rule, the product quality is not reflected in the prices. This imposes losses on the state when they sit in warehouses, or on the consumer when they are sold. Thus, there is a redistribution of income in favor of those who manufacture poor quality products.

Unearned income is directly tied with mark-ups. In industry, for example, the portion of mark-ups comprises from 10 to 15 percent. It is not especially difficult to determine mark-ups. For example, if the output in rubles per person engaged in repair work is 2-4 times higher than in the installation of new equipment, it is clear that this cannot be, since repairs are usually performed at operating shops at a significantly slower rate. The high output exists only on paper. The solution here is seen in a decisive transition from the "gross" method of evaluating the work of the repairmen toward an evaluation of their labor by reduction of "input" into a unit of product manufactured by the enterprises.

At machine building enterprises the mark-ups in assembly shops are especially high. The irregularity in the operation of many enterprises forces the administration to have capacities which are not accounted for and an excess number of workers at the concluding stages of the production cycle. These workers are regularly paid a wage which is not adequate to their labor input. Evidently, we must evaluate the activity of machine building enterprises in a new manner. The person responsible for increase in labor productivity should be rewarded for it; there should be incentives not merely for improved quality, but also for reduced production cost, and in a number of sectors--for reduction in the volumes of production.

The dynamics of unearned income may be judged, for example, according to the losses of work time. If a wage rate is paid to workers in full, then there should not be any work time losses over those which are technologically unavoidable. However, a survey of a number of enterprises testifies to the fact that although, according to official reports, the losses in the work time shift fund comprise from 0.1 to 0.6 percent, in reality they are much greater. Thus, at some mines the intra-shift losses reach 30-40 percent of the work time shift fund, while in lumber processing they are 40-60 and in metallurgy they are 40-60 percent.

The losses in material resources are also tied with unearned income. The end result of any planned overexpenditure of material resources is the realization

of additional income due to the resources which were supposedly processed. Moreover, the inflated standards for losses ensure an "easy life" for some collectives. The amounts of these losses, only officially computed, comprised around 6.4 billion rubles in 1985. Someone received wages, and possibly even bonuses for the production and processing of these resources which were lost to society.

A. Deryabin (USSR Academy of Sciences Economics Institute sector chief, doctor of economic sciences, professor).

The acute nature of the problem of unearned income consists of the fact that no appeals for radical reorganization in the socio-economic sphere can yield a full return as long as there are people around who receive illegal labor income. In reality, they resist not only by their actions, but also in that revolutionary transformation which our society needs so much today.

The existing economic management mechanism has many loopholes for obtaining unearned income in the socialized sector of the economy. These loopholes must be closed, since all of them contradict objective regularities. For example, we know that prices are the social standard of expenditures and results, a monetary expression of cost. However, for decades the normative and cost content of the plan price has been subject to erosion. The individualization of prices occurred under different pretexts. Today in agriculture practically every kolkhoz and sovkhoz has its own individual prices. The same thing, but in somewhat obliterated form, has also taken place in industry. As a result, in the overwhelming majority of cases, an economically unjustified differentiation has arisen in expenditures throughout the country's territory and between the enterprises. Even in the processing sectors of industry, the expenditures, losses, waste, discards, etc. vary by 2-3 times, and sometimes even by 5 or more times. Yet the effective prices cover all of this. In many cases they are merely a guise for extracting unearned income.

There is also an absence in objectively necessary differentiation in prices. For example, wholesale prices for passenger automobiles manufactured in the country are almost identical in price, but vary sharply in quality and technical parameters. It is a remarkable fact that the purchase prices for the same agricultural products in the southern regions of the country, including for the subtropical zone and in the Karelian ASSR are approximately equal, and in certain cases in Karelia they are even lower. In recent years much has been said about Georgian tea, about its low quality which is now being "improved" by the addition of Indian tea. Yet the purchase and wholesale prices for Georgian tea are many times higher than the prices on the world market. All this also serves as a source for unearned income and has unfavorable consequences in training the workers. We believe that the solution to these types of questions is concealed in the radical improvement of price formation and in the introduction of a cost evaluation for land of varying fertility with corresponding rent payments. This topic has already been discussed for decades. However, if we place the struggle against unearned illegal income solely on the law enforcement agencies, it is difficult to expect a complete victory. For this we must involve in the struggle against unearned, and especially illegal, income the broad strata of workers who would understand that receiving unearned income is a deduction for them, for those who live by their own labor. At every

enterprise, kolkhoz, sovkhoz and trade organization everyone must know how much they would receive for their labor if, for example, there were no misappropriations or other types of losses. Such cost accounting must enter into everyone's consciousness.

V. Kulikov (Academy of Social Sciences under the CPSU Central Committee, doctor of economic sciences, professor).

We must distinguish earned labor and unearned income on the one hand, and regular (legal) and irregular (illegal) income on the other. While the first pair includes economic categories, the second includes legal ones. They are, of course, interrelated, but not identical. Confusing them hinders the identification and struggle against that legal income which by its nature is unearned. It also hinders active influence on the legal standards in those cases where, in essence, income earned by labor falls under punitive measures.

We must overcome the stereotype conception that unearned income is generally associated seemingly with individual types of activity. This concept is so deeply rooted that it has even penetrated into the text of the directive on the struggle against unearned income, thereby giving cause for certain abuses in the execution of the given directive. The law on individual forms of labor activity introduced the necessary correction, and only with consideration of this can we examine the question of unearned income.

Without belittling the possibilities of forming the latter on the basis of individual activity, it is at the same time important to see that the primary sphere for extraction of unearned income is socialized production.

Despite the acute nature of the question on income realized from speculation, bribes, misappropriations and the need for the most decisive struggle against such income, unearned income cannot be reduced to only these, just as this income cannot be associated merely with large income. Unearned income is much more varied and widespread than is commonly believed. Any income, regardless of whether it is large or small, is unearned if it has not been fully worked for.

The basic law of distributive relations under socialism is the law of distribution according to labor. Therefore, (labor) earned income must be examined primarily from these standpoints.

At the same time we know that other economic laws also apply also affect the distributive relations, and among these is the law of cost. Therefore, in resolving the question of labor earned income, it is important to recognize the fact that distribution according to labor does not exclude, but on the contrary presupposes, a deep differentiation of income depending on the labor input.

The speech and a number of presentations thoroughly demonstrated that a favorable cultivating ground for the formation of unearned income in huge amounts is created by mark-ups and lack of refinement in the system of accounting for losses. At the same time, we must also see other circumstances favoring the formation of unearned income: price formation with orientation in many ways

toward individual expenditures and other means of artificially raising prices, and consequently also the results of production; planning based on what has already been achieved; redistribution of funds in favor of poorly operating enterprises and sectors; placing on wages the functions of social compensation which are not inherent to it. We are speaking here of all the manifestations of dependency in distributive relations.

And, finally, in order to eliminate unearned income the main thing is to improve the forms of realization of social property, to strengthen the proprietary attitude of each worker and his collective toward labor and toward the social property. At the same time, we must realistically analyze the effective system of economic management: is it possible within its framework to eliminate all the phenomena favoring the formation of unearned income, or are other means of transition under conditions of a planned system of economic management necessary?

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**WORK SCHEDULE FLEXIBILITY URGED TO PROMOTE LABOR GROWTH**

Moscow SOVETSKAYA YUSTITSIYA in Russian No 5, Mar 87 pp 11-12

[Article by O. Makarova, chief economist, USSR State Committee for Labor and Social Problems, and N. Tarasova: "The Sliding Work Schedule and Raising Labor Effectiveness"]

[Text] Given the present scale of social production, sensible use of work time is becoming an urgent task.

In accordance with the CPSU Program and decisions of the 27th CPSU Congress the party foresees further development of the diverse jobs of working women. A flexible work schedule, part-time work and homework will be utilized more widely in order to create favorable conditions for combining motherhood with active participation of women in labor and social activity.

These forms of work scheduling, which are of priority importance to women, may also be applied to other categories of citizens and individual social groups that cannot work a normal schedule for some reason.

The existing system of labor organization is poorly oriented on economization of shift work time, and it does not promote complete and sensible employment of the population or optimum use of work time, which are closely associated with growth of labor productivity and with development of the personality of the producer himself. The rigid limits that have been established for the work day do not take account of the individual possibilities of each worker, and they impose additional burdens that reduce the effectiveness with which the work force is utilized. Flexible forms of employment--ones which account for the peculiarities of individual contingents of the population--are precisely what open up wide possibilities for making sensible use of the labor of both main and supplementary sources of manpower, and ensure compatibility of the interests of society, the collective and the individual worker.

Labor collectives are called upon to play an important role in sensible use of work time (see for example articles 11 and 15 of the Law on Labor Collectives).

The procedure and conditions of using a sliding (flexible) schedule (SGR) are regulated by the Statute on the Procedures and Conditions of Using the Sliding

(Flexible) Work Schedule for Women with Children, approved by Decree No 170/10-101 of the USSR State Committee for Labor and Social Problems and the AUCCTU Secretariat dated 6 June 1984 (BYULETEN GOSKOMTRUD SSSR, No 9, 1984, p 23).

This work schedule helps women with children as well as some other categories of citizens to participate more broadly in social production, and to plan the time during which they work independently (in compliance with certain restrictions). Rather than being scheduled rigidly, the start and end of the work day and the lunch break are defined by particular time intervals.

The SGR is documented in sector regulations governing the internal work procedures of the enterprise, institution or organization. It may be applied both to workers with a five-day or six-day work week and to workers with other work schedules in all sectors of the national economy. The statute regulates the procedures and conditions of work on a flexible schedule. It is established on the basis of an agreement between the administration and the workers, and it is made effective by an administration order coordinated with the trade union committee with regard for the particular features of production and the production process, labor organization, working conditions and the opinion of the labor collective of the shop, section or department in which this schedule is to be employed.

Typically the SGR may be established both with an unlimited effective period and for any period convenient to the worker--for example until the worker's child reaches a certain age, until the end of the school year and so on.

The statute clearly defines the work-rest schedule associated with the SGR. The duration of daily and weekly time off established by law is maintained for the worker. In this case the maximum total work time per day must be not more than 10 hours, and the time a worker remains at the enterprise from the beginning to the end of the shift, including unpaid breaks during it, must be not more than 12 hours.

As was noted above, the sliding (flexible) work schedule may be used in different variants depending on the way work time is to be apportioned and depending on production and local conditions; however, compliance with the annual balance of work time, calculated on the basis of a seven-hour work day and a six-day work week, is a mandatory condition of its use.

This statute foresees that the SGR must consist of three parts: fixed time (time during which the worker must be at his work station); variable time (within the limits of which the worker is entitled to begin and end his work at his own discretion); rest and food breaks (not less than 30 minutes and not more than 2 hours within the variable time period). Such breaks are not included in the work time. The SGR is typically set up such that fixed and variable time can be changed. Overtime work by workers operating on the basis of an SGR is strictly regulated by law (articles 54-55 of the RSFSR Labor Code). Disabled individuals are allowed to work overtime only in the event that this is not forbidden by medical recommendations.

To permit efficient job completion under the SGR, the production operations, shops, sections and departments introduce a cumulative system for accounting for work time and for fulfillment of weekly norms (on the average). This system may be based on a weekly, monthly or some other period adopted in the given subdivision as the accounting period used in compiling the time budget. This period can be equal to a work day, or a work week or a month, depending on what form of SGR is used at the given enterprise (institution or organization).

The SGR system is used mainly in three forms--daily, weekly and monthly. In the daily form the daytime work day is divided into two parts--fixed time (an established minimum) and flexible time. Under the conditions of a flexible work day, time not worked in the morning hours must be made up in the evening hours of the day. To make flexible work time more effective, the time the enterprise (institution, organization) operates must be greater than with other forms of flexible work time. The weekly and monthly forms of flexible work time are the most flexible, since they permit the worker to adjust his daily, weekly and monthly work load independently.

Precise accounting of worked time and effective control over the fullest and most sensible use of work time by each worker are mandatory conditions of effective use of the SGR.

A worker who violates the conditions of working on the basis of the SGR loses the right to work by it for a period of up to 3 months; if a repeat violation occurs, the worker is transferred to the generally established work schedule and disciplined. The SGR cannot be used for work away from the enterprise (for example during business trips).

The SGR has been in use in our country for more than 10 years. Generalization of that experience persuades us that it has many social and economic advantages over the strictly regulated work schedule that is now so widespread. It harbors significant possibilities for growth of labor effectiveness and for release of "internal human energy."

Note that while when the SGR was first introduced the possibilities it offered for improving working conditions (especially for women) were evident, now it has become clear that it also helps to raise labor discipline.

The SGR creates objective preconditions for reducing losses of work time. Thus after individual scheduling was introduced into the painting and packing section of the Lipetsk Machine Tool Building Plant, which employed women for the most part, the amount of sick leave claimed for child care purposes decreased by almost a factor of 2.2.

Introduction of the SGR helps to reduce personnel turnover, and it raises the probability that workers would refuse transfer to other organizations and subdivisions in which such a schedule is not yet in use.

Growth of labor productivity is a consequence of sensible use of work time under an SGR. Thus after the SGR was introduced into the assembly shop of the

Lipetsk Machine Tool Building Plant, labor productivity grew by 9.1 percent. The volume of work done at Stroymash (in Bryansk) increased by 10 percent under the new schedule. We think that use of the SGR and part-time work will promote sensible use of equipment, which often still experiences idleness with one-shift work.

The SGR has the positive effect in that it reduces labor stress, which arises, as we know, not so much owing to the volume of the work itself as due to imposition of an unsuitable rhythm upon the individual. It has been noted that when the stress of labor decreases, its intensity grows. Reduction of negative emotions (transportation stress, the fear of being late for work, overtiring and so on) is not the least important here. In this connection many specialists associate solution of the transportation problem with a transition to the SGR. And although it cannot be said that this would completely solve the problems associated with rush-hour transportation in a large city, it can be said with certainty that such problems do not exist in those cities that have made a transition to the SGR.

The social and psychological advantages of the SGR are associated with more than just raising labor effectiveness. Such a schedule affects the internal workings of the individual's personality, his attitude toward life. The SGR may be interpreted with full grounds as one of the ways of activating the personality and raising the level of the individual's specialization.

Studies have shown that introduction and use of the different forms of the SGR intensifies production without additional capital expenditures. The flexible work schedule decreases whole-day losses of work time resulting from personnel turnover, leaves authorized by the administration, sick leave, absenteeism, machine idleness and other unaccounted losses stemming from personal problems.

At the same time many of the legal issues associated with the SGR require examination and resolution. Legal problems are regulated today on the basis of existing rules of labor legislation determining the duration and control of work time. It is important to legally establish the minimum and maximum work time limits for the work day, and the period in which the work time norm must be completed (daily, weekly, monthly); the legality of transferring work owed (extra work) from one accounting period to another must be determined; the concept of overtime work under the conditions of the SGR must be clearly defined.

The task of accelerating the country's socioeconomic development posed by the CPSU requires deep shifts mainly in the economy. The new edition of the Party Program and the Basic Directions of the USSR's Economic and Social Development in 1986-1990 and in the Period to the Year 2000 adopted by the 27th CPSU Congress determine the major milestones in the country's economic and social development. Wide development of flexible forms of employment will promote sensible use of labor resources and introduction of additional sources of manpower into social production, and it will be an important step in implementing the party's decisions.

Introduction of the SGR as a lighter work schedule is evidence of concrete concern for the concrete individual, of creation of the conditions for

productive, high-quality work, for health protection, for raising occupational proficiency and for creation of a favorable moral and psychological climate in the collective. All of this will promote growth of the prestige of the individual in the labor collective, tighter discipline and increasingly more active participation of workers in management of production and social affairs.

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